

6.13 VISUAL RESOURCE ANALYSIS

INTRODUCTION, KEY ISSUES, AND METHODOLOGY

This section presents an evaluation of existing visual resources in the vicinity of the Morro Bay Power Plant (MBPP), the visual character of the existing power plant, the Project, and findings of overall visual impact.

The MBPP is located in the City of Morro Bay, 12 miles northwest of the City of San Luis Obispo. The MBPP sits on the west side of town, where Morro Creek meets the ocean, between Highway 1 and the Morro Bay shoreline. The Morro Bay area includes diverse natural features, including the ocean and long beaches, bay, sand spit, wetlands, and harbor areas. Morro Rock, a major focal point of the area, rises out of the ocean. One-half mile east of rock is the MBPP, with its large building and three tall stacks. The City of Morro Bay surrounds the plant on three sides, with grassy, rolling coastal hills surrounding the city.

The Project at MBPP would replace the existing power plant facilities with two state-of-the-art 600 MW combined cycle units. Each new unit would consist of two gas-fired turbines and one steam turbine driven by heat produced by the other turbines. Each of the two new units would have two 145-foot tall stacks. These elements are considerably smaller than the existing equipment, which is to be demolished to a level of one foot below grade. The equipment and facilities to be demolished include the 500-foot-long boiler – steam turbine complex, three 450-foot stacks, and six on-site oil storage tanks.

Based on the analysis presented here, the overall visual quality benefits of the Project would be very positive for the city of Morro Bay. These benefits include:

- Elimination of the visual dominance of the existing power plant from nearly all points within the viewshed.
- Elimination of the “visual competition” between the existing power plant and Morro Rock.
- The Rock would not be obscured by the existing power plant.
- Views of the skyline would be improved by the removal of three 450-foot stacks.
- Coastal views would be enhanced from the hills and homes surrounding the Project.
- Pedestrian and bicycle paths would completely surround the Project.
- Extensive landscaping would be included as part of the Project.

Based upon: (1) the evaluation of 20 Key Observation Points (KOPs), (2) the proposed design improvement package, (3) the limited plume visibility, (4) compliance with local plans and policies, and (5) positive cumulative impacts, the conclusion is that the Project would not have a significant overall adverse visual impact on the community and region. The visual effect of the Project on the City of Morro Bay would be very positive.

Addressing City Issues & Concerns

Duke Energy has put forth considerable technical and creative effort to address the visual issues and concerns raised by the City of Morro Bay and to produce a project that is visually sensitive, technically accurate, and consistent with City visual resource policies. The most important visual aspect of the Project is the demolition of the existing power plant, a facility with considerable productive capacity remaining. This act alone provides huge visual benefits, not only to the City of Morro Bay but to the surrounding region. Any person that currently has a view of the stacks will derive benefit from the Project, from what will *not* be visible.

The aspects of the Project which *will* be visible incorporate many design improvements, as well as suggestions from the public, that reduce potential visual impacts and improve the visual quality of the Project. For example, the location and orientation of the Project was selected, with involvement by the public at a City sponsored workshop, to be as far away from the beach as possible and to reduce the apparent visual height of the stacks when viewed from the hills to the east. The largest structures have been oriented on an east/west axis and minimized to limit obstruction of the nearest views, and the water-intake structure will receive a new waterfront facade to blend with adjacent waterfront buildings on the bay. Colors will be selected, with the City of Morro Bay, to blend the Project with the surrounding environment, and appropriate landscaping will be included as part of the Project. To read more about ‘design considerations for reduced visual impact’ please refer to the section by that name on page 6.13-51.

Particular attention has been given to the landscaping of the Project. An entire section in this Visual Resources evaluation has been devoted to landscaping, and is provided as Attachment 6.13-1, beginning on page 6.13-187. A major feature of the Landscape Plan is compatibility with the Environmentally Sensitive Habitat, adjacent to Morro Creek, where non-invasive, genetically compatible native plant species are proposed. Concepts of screening views of the Project, without blocking views of the ocean, are integrated into the landscaping. Where

views of the ocean and beach could be blocked by taller plant material, dune vegetation composed of lower growing plants will be integrated by specific request by the City to blend into the coastal dune environment. To conserve water, the use of drought-tolerant plant material is also a consistent theme.

In response to questions about the technical accuracy of the simulations, the computer model, and the software used to view the model from specific points in space, creates simulations that are an accurate portrayal of the location, size, and form of the Project when viewed from medium to long distances. Where detailed, close-up views are required. A Project Design Model (PDS) (a project further along in construction design phases) is used to provide those details. The PDS model is further augmented with photographs from similar power plants in other locations so that readers can fully understand how the Project will look. In some cases, artist concept drawings, such as in the landscaping section, have been used to communicate the overall look of a landscape proposal.

The measurement process used to determine measurable levels of visual contrast received thorough attention in this document. Because the process is computer driven and technical in nature, it has been described with increasing levels of detail in three places. First, the methodology is introduced in general terms (see the following section). Next, the analysis criteria are introduced followed by a more in depth description of the process of measuring visual change on the simulations. The last and most detailed description of the process is provided in Attachment 6.13-2, a technically detailed discussion of the entire process, including the software used and the levels of accuracy provided.

Visual Resource Analysis Methodology

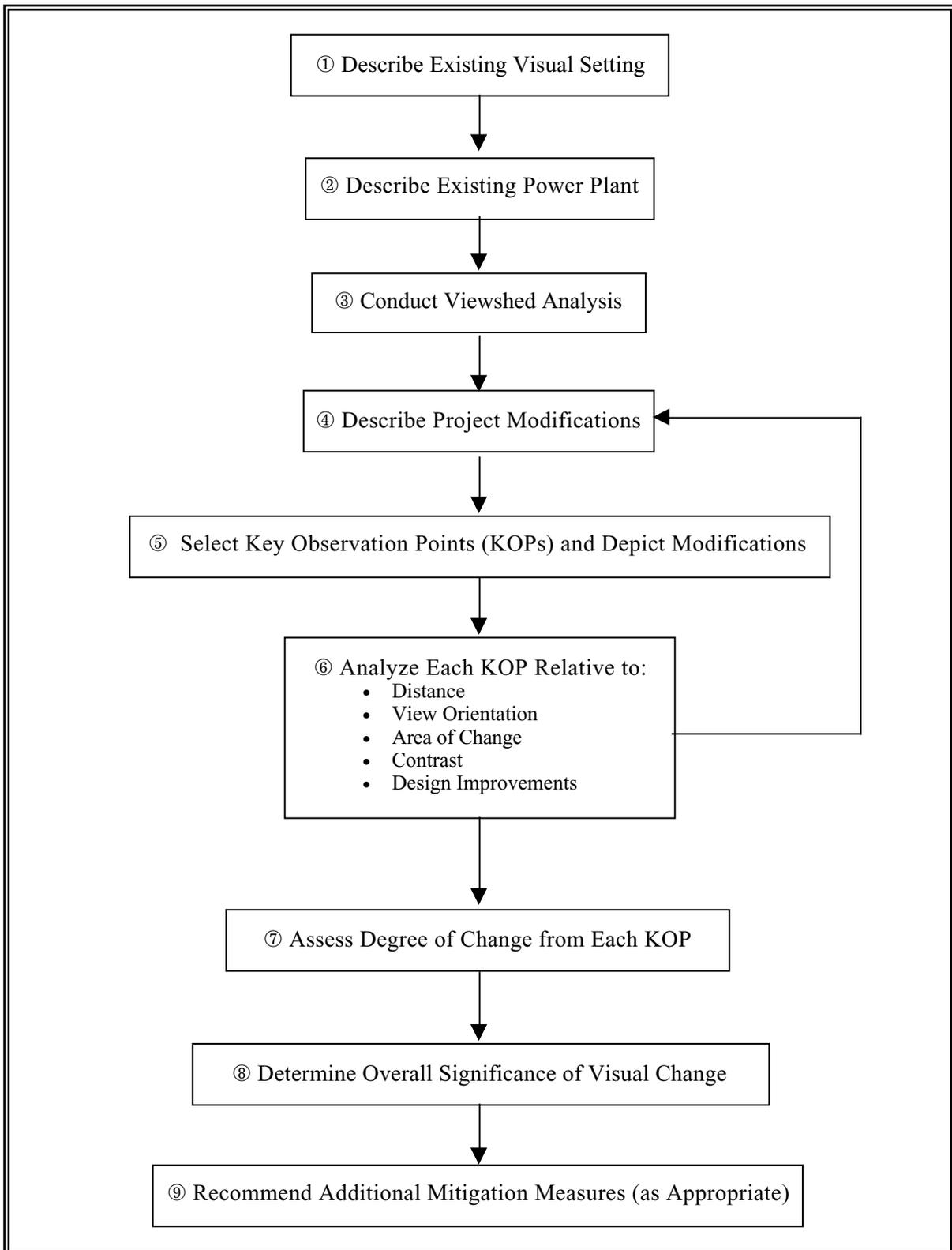
The method used to inventory existing visual conditions and evaluate visual changes resulting from the Project at the MBPP is illustrated in simplified form in Figure 6.13-1, and described in greater detail in the following pages.

1. Describe Existing Visual Setting

The existing visual setting of the study area has been characterized as follows:

- Description of landscape character and assessment of visual quality
- Identification of agency plans and policies related to aesthetics
- Description of viewer conditions and sensitivity

Figure 6.13-1: Methodology for Visual Resource Analysis



Landscape character was documented in narrative, photographic, and map form based on a combination of site visits, published mapping of various types, and aerial photography. Elements considered in this characterization include land use, terrain, water, vegetation, landscape modifications, and development patterns.

Visual quality assessment is a structured analysis of the scenic value of the Project area. For this assessment, the Bureau of Land Management Visual Resource Management (BLM VRM) process was used as the model. It considers the character and quality of seven landscape variables — landform, vegetation, water, color, uniqueness, scarcity, and influence of adjacent scenery — in a systematic and structured process.

2. Describe Existing Power Plant

The visual setting of the existing MBPP was characterized. Information pertinent to the visual analysis is described, including the size, height, and visibility of the existing elements. This includes information such as the location, size, layout, and color/materials of the visual components of the MBPP.

3. Conduct Viewshed Analysis

Several visits were made to MBPP and the surrounding region to document local land use patterns, landscape content and conditions, sensitive viewpoints, and viewing conditions. The areas with potential visual impact from the Project were identified as the area within which measurable change may be visible. The limits of this area were determined based on an understanding of the land, the viewpoints within the larger region, and a thorough comprehension of the Project.

An initial list of observation points was compiled to provide an in-house, comprehensive base of visual information from which to analyze the Project during the Commission's application process. Local knowledge of the community was vital to this process; therefore, local planners, artists, and landscape architects have participated on the Planning Team. Eighty-two initial observation points were examined to determine which ones best represent:

- Typical views within the viewshed of the Project
- A special project or landscape feature
- High viewer use of special location
- Important cultural viewpoints

A terrain-based visibility analysis was conducted to identify areas that could be excluded from study due to topographic screening. As a result of these investigations, the study area was defined to be within five miles of the Project, where changes might be visible and measurable.

4. Describe Project Modifications

The Project description in Chapter 2.0 was used to identify and document the visually significant components of the Project. This included both the addition of major Project components and the removal of existing elements. The characteristics of the Project were documented in Computer Aided Design (CAD)-generated line drawings. The drawings were then used to create photographic simulations of the Project as viewed from each of the Key Observation Points (KOPs), to produce realistic images of future conditions.

5. Select Key Observation Points (KOPs) and Depict Modifications

The objective of this step was to identify a select number of viewpoints that represent the most typical sensitive viewing conditions. These include considerations such as distance from the Project, duration of view, number of viewers, landscape content, the direction the viewer is facing, and viewer type (residential, recreation, mobile). A large number of highway, recreation, and residential viewpoints were considered. Key Observation Points were selected in collaboration with the City of Morro Bay staff, California Energy Commission staff, Morro Bay citizens, local planners, artists, and landscape architects to represent both sensitive and typical viewpoints.

The process of creating the future simulations of the Project started with taking a series of photographs from each KOP. The photographs were scanned to create a digital file on top of which the image of the Project could be placed. A three-dimensional, computerized model of the Project is then viewed from the same angle as that of the KOP photograph. When the angle is matched, as discussed below, a 'picture' of the model is taken and then transferred onto the photograph. These simulations accurately portray the location, size, and form of the Project reflecting as closely as possible the prospective view. By systematically comparing the 'before' and the 'after' photographs, the visual impacts from each of the KOPs is assessed in a consistent manner. Attachment 6.13-2 contains a more complete discussion of the process used in the preparation of these simulations to ensure their location, scale, and accuracy.

6. Analysis of KOPs

The existing conditions and photo simulation images of each KOP were methodically compared using objective, measurable characteristics of change. These included:

- **Distance** – A measurement of the distance between the KOP and Project location.
- **View Orientation Description** – Includes consideration of the location of the plant in relation to significant features in the overall field of view.
- **Area of Change** – A measurement of two factors: (1) the horizontal field of view occupied by visible Project elements, measured in degrees of arc; and (2) the total area of change of Project features in view, measured in square millimeters in the photograph.
- **Skyline Contrast** – A measurement of the net change in the amount of the Project that interrupts the skyline (i.e., sky on three sides) measured in square millimeters within the KOP photograph.
- **Coastal Features Contrast** – The amount of the Project visible in the foreground of water features (sand spit, ocean, beach, inlet, or bay), measured in square millimeters within the KOP photograph.
- **Morro Rock Contrast** – The amount of the Project visible in front of Morro Rock, measured in square millimeters within the KOP photograph.

All measurements were calculated in ArcView Version 3.2, a Geographic Information System (GIS) software program. The dimensions of the amount of facility to remove, and the amount of new facility to be built, were computed from geo-referenced images of existing and simulated conditions. These measurements were then reported in both square millimeters and percentages on the KOP datasheet.

Design improvements that would improve the visual aspects of the Project were explored, developed, and evaluated. Those judged to be effective in reducing unnecessary visual change were recommended. The changes were then re-simulated and reevaluated.

7. Assess Degree of Change From Each KOP

With the information documented and available through the analysis of KOPs (as described above), a final rating for the relative degree of change was determined for each KOP considering the measurements above, and scored with the following ratings:

- **Positive** – The overall change was a visual improvement to the existing scene.
- **Neutral** – Changes in the overall scene may be visible, but the net effect is neither clearly positive nor negative.
- **Negative** – The overall degree of change represents a degradation of the existing scene.

8. Determine Overall Significance of Visual Change

The significance of visual change for the Project was based on the overall effect of the Project on all representative viewpoints (KOPs) evaluated. If, based on the outcome of all of the individual KOP assessments, it was clear that widespread effects of the Project would be positive or neutral, visual impacts would be considered not significant. If the visual effects were found to be widespread, negative, and non-mitigable, the visual impacts for the Project would be judged significant. It should be noted that a negative impact from any individual KOP does not necessarily connote a finding of overall significant impact for the Project.

9. Recommend Additional Mitigation Measures (as Appropriate)

Mitigation measures will be recommended to reduce the degree of visual change, if warranted, after evaluating the effectiveness of the design improvement package.

6.13.1 EXISTING CONDITIONS

6.13.1.1 Visual Setting

The existing MBPP is located within the city limits of Morro Bay, about 12 miles northwest of the city of San Luis Obispo. The Morro Bay area includes diverse natural and man-made visual features, including the MBPP, which contribute to the community's unique character. The MBPP is located on the west side of town between Highway 1 and the Morro Bay shoreline, in Tract 53, otherwise known as the Industrial Area. The Pacific Ocean, Estero Bay, Morro Bay, and Morro Rock are to the west, and State Highway 1 borders the Property to the east.

The MBPP is south of Morro Creek, north of old town Morro Bay, west of Highway One, and east of Embarcadero Road. The Project site is located on the northwestern side of the approximately 107 acres of the MBPP property, within the existing oil tank farm for Units 1-4. Construction of the MBPP began in 1951 after Pacific Gas & Electric (PG&E) purchased the land, formerly a U.S. Navy Base during World War II (WWII), from the County of San Luis Obispo. For a map of Morro Bay and the region, see Figure 6.13-2.

6.13.1.2 Visual History

The Town of Morro was founded in the mid-1800's, at which point it was already a customary stop for schooners travelling to and from San Francisco. Photograph 6.13-1, taken in the 1920's, shows Morro Rock as an island at the tip of the sand spit. Limited agricultural development can be seen sheltered by small trees set back from the sand dunes. Morro Rock remained an island until 1933, when the north entrance to Morro Bay was closed with a rock revetment connected to the Coleman Beach Area, as seen in Photograph 6.13-2.

Prior to WWII, most of the small community of Morro Bay was situated on bluff tops away from the coastline. The U.S. Department of the Navy initiated a national defense project in 1942 that led to the rapid development of Morro Bay. Navy development included construction of the north and south breakwaters, two T-piers, and the inner harbor revetment from Coleman Beach to the sand spit. Photograph 6.13-2 shows the area soon after this work was completed.

The construction of the Embarcadero began in 1949 when the old Navy base was sold to the County of San Luis Obispo. A small but growing fishing fleet increasingly used the docks and T-piers. In the 1950's, the old Navy base was divided by the County; a portion was sold to PG&E.

Photograph 6.13-1: Photograph circa 1920's



Source: (Photographer unknown)

Photograph 6.13-2: Photograph circa 1940's



Source: (Photographer unknown)

Duke Energy Morro Bay, L.L.C.

Landscape Units and Population Segments



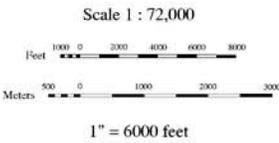
Landscape Units

- Grassy Coastal Hills
- Ancient Volcanic Hills
- Valley Floor, Existing and Potential Agriculture
- Ocean, Beach and Dunes
- Estuary, Wetlands, and Lowlands Complex
- Residential Neighborhoods
- Industrial Area
- Other Developed Areas
- Morro Bay Harbor Area

Population Segments

- Recreational Populations
(# Vehicles in Peak Month — Aug 1997)
- Mobile Populations
(Average Annual Daily Traffic)

*** New Project Location**



GIS Mapping by **EDAW, Inc.** — San Francisco
Contribution from **Tina Metzger Enterprises** — Los Osos

SOURCES: EDAW, Inc. (1999) / Tina Metzger Enterprises (1999) / CA State Parks & Rec (FY 1997-98) / Cal Poly GIS (1999) / USGS — 7.5 Min Quads and DEM

Photograph 6.13-3: Photograph circa 1986



Source: Peter Mounier, Photographer

Morro Bay Power Plant Units 1 and 2 came online in 1955 and 1956. The power plant was expanded in the early 1960's with the construction of Units 3 and 4, which first produced electricity in 1962 and 1963. The City was incorporated in 1964 and assumed ownership of the County-owned waterfront facilities. After its incorporation, the City developed rapidly, as shown in Photograph 6.13-3 taken in 1986. Despite this expansion, the landmarks of Morro Rock and the sweep of the sand spit retained the unique visual character of the area.

6.13.1.2 Landscape Units

Eight distinct landscape character units have been defined within the vicinity of MBPP, as shown in Figure 6.13-2, a map of Landscape Units and Population Segments. The mobile and recreational populations referred to in the figure are those populations that tend to pass through the area. The visual characteristics of the Morro Bay landscape are briefly described in the following pages.

Grassy Coastal Hills

The grassy coastal hills that border the eastern portions of Morro Bay provide a pastoral backdrop to the town. These gently rolling hills are often dotted with grazing cows, recalling California as it was a century ago. The grasses turn from an emerald green in the winter and early spring to a golden brown in the summer and fall. There is a distinct demarcation between the town and the broad, undeveloped expanse of the coastal hills.

Ancient Volcanic Hills

Residents and visitors alike cherish these ancient volcanic peaks, which rise from the Morro Bay landscape and are part of a chain of 14 peaks that continue southeast to San Luis Obispo. Visible from Morro Bay is Morro Rock, often called the Gibraltar of the Pacific, with an elevation of 578 feet. Black Mountain (661 feet), Cerro Cabrillo (911 feet), and Hollister Peak (1,409 feet) are also visible from this point (USGS Topographic Map). According to local fishermen, another peak – Church Rock – is submerged below the surface of the Pacific Ocean just west of Morro Rock. The Chumash Indians likely used Morro Rock as a vantage point and navigational landmark, much as fishermen use Morro Rock and the power plant today.

Ocean, Beach, and Dunes

West of the City of Morro Bay lies the Pacific Ocean, beaches, and sand dunes. In some areas of the dunes and sand spit, plants (such as lupine, verbena, primroses, and beach morning glory) have stabilized the shifting sands just beyond the high-tide mark. The sand spit, long and narrow, separates the bay from the Pacific Ocean; some of its higher dunes are approximately 80 feet above sea level. Long shore currents and waves carry sand south in winter and north in summer. Prevailing northwest winds deposit dry sand on the dunes beyond the wet shore and above the beach. Beaches north of Morro Rock are popular with residents and tourists. The sand spit environment supports black-tailed hares, bush rabbits, deer, raccoons, bushtits, finches, hawks and owls, among other native species.

Photograph 6.13-4: Grassy Coastal Hills



Photograph 6.13-5: Ancient Volcanic Hills



Photograph 6.13-6: Ocean, Beach and Dunes



Photograph 6.13-7: Valley Floors, Existing and Potential Agricultural Areas



Photograph 6.13-8: Estuary, Wetlands, and Lowlands Complex



Photograph 6.13-9: Morro Bay and the Harbor Area



Valley Floors, Existing and Potential Agricultural Areas

The agricultural valley floor east of Morro Bay, delimited by Little Morro Creek Road on the south and State Highway 41 on the north, is the main agricultural area of the Morro Bay vicinity. The picturesque valley has many avocado groves, citrus groves, and row crops; the gently rolling hills framing the valley host herds of grazing cattle. The landscape is dotted sparsely with agricultural structures and farm homes. The valley floor's soil is divided approximately one mile east of the City of Morro Bay by low hills separating Morro Creek Road from State Highway 41. To the east of this agricultural valley are the Santa Lucia Mountains.

Estuary, Wetlands, and Lowlands Complex

Morro Bay is a particularly biologically productive estuary, as it shelters more species of wildlife and waterfowl than any other estuary in California (Morro Bay Watershed Study 1975). According to the Department of Fish and Game, the Morro Bay Estuary area is four miles long, one and three-quarter miles wide, and has a total of 2,720 surface acres at high tide, including mudflats, pickleweed, marsh, eel grassbeds, and salt marsh, with approximately 22 miles of bay channels. Chapparral and pygmy oak groves border parts of the estuary.

Bordered on the southeast by Los Osos Creek and Chorro Creek on the northeast, the estuary provides a resting and feeding habitat for tens of thousands of birds and other wildlife. A favorite recreational area for kayakers, the Morro Bay Estuary is where land meets water, fresh water meets salt water, and upland meets salt marsh, mudflats, and the open Pacific. Over the centuries, the Morro Bay Estuary has filled in with sediment, a process accelerated in recent times by agriculture and development and by the dispersal of sand dunes, on the west side. Morro Bay is a designated national estuary, home to over 64 species of fish and more than 200 bird species, including great blue herons, great egrets, snowy egrets, kingfishers, terns, pelicans, loons, grebes, cormorants, scoters, curlew, and black brants.

Morro Bay and the Harbor Area

Called "The Jewel of the Central Coast," Morro Bay's inception revolved around the shipping and trading of potatoes, dairy products, barley, and wool in the 1870's. Old town Morro Bay was laid out in 1872, and the former village grew into a fishing community and abalone and oyster-farming center. At this time, Morro Rock was an island; boats entered the harbor on both its south and north sides. Surging tides, high winds, and erratic surf combined with two-way sea traffic served to make the entrance to the harbor dangerous. This problem was solved in 1933 when a causeway was built to Morro Rock, closing the north entrance and

connecting Morro Rock with the town.

Today, Morro Bay is both a commercial and sport fishing town, also known as a colony of artists. The city has grown geographically over time, bordered by the bay and the Embarcadero commercial area, Morro Bay State Park to the south, and State Highway 1 to the east.

Morro Bay Harbor is the principal center for the commercial fishing industry along the Central Coast. During WWII, the Navy dredged a channel into the bay and along the bay's east side. Aggregate material from the dredge formed the base of the Embarcadero area.

The harbor has a complex of piers that extend into the harbor waters; the two largest are the North and South T Piers. Approximately 70 moorings and 50 slips are maintained by the City of Morro Bay. Visually, the harbor is dominated by Morro Rock, the power plant's stacks, the sand spit to the west, and the town of Morro Bay adjacent to the hills in the direction of Black Mountain. The lights at the top of the power plant stacks reach far out into the ocean.

The Industrial Area

Tract 53, commonly called the "industrial area," is a region defined by the dunes and the beach to the west, Morro Bay High School to the north, the MBPP to the south, and Highway 1 to the east. This is a low-lying area with several industrial and commercial uses, separated geographically from MBPP by Morro Creek. To the north of Morro Creek are a variety of operations, including a concrete plant, the Morro Bay City Wastewater Treatment Plant, the Morro Bay City Maintenance Yard, a motel, a recreational vehicle (RV) resort campground, RV storage, Lila Keiser Park, and a miniature golf course. The MBPP is south of Morro Creek.

Residential Neighborhood Landscape Unit

The City of Morro Bay contains approximately 15 local neighborhoods, named per the development tracts as defined by the City of Morro Bay Public Works City Tract Map. The neighborhoods vary in landscape character and are described in Section 6.13.1.4.

Photograph 6.13-10: The Industrial Area



Photograph 6.13-11: Residential Neighborhood Landscape Unit



6.13.1.3 Adjacent Land Uses

Current land uses adjacent to the MBPP include industrial, light industrial, commercial, marine, residential and recreational. To the north, industrial land uses include the Morro Bay City Wastewater Treatment Plant, the Morro Bay City Maintenance Yard, and an aggregate plant. Also to the north (on property owned by Duke Energy and leased to the City) are storage facilities for local fishermen, a recreational vehicle campground and storage yard, and the fenced and lighted baseball fields known as Lila Keiser Park. Commercial facilities north of the MBPP include a motel, a miniature golf course, and an indoor roller rink. To the east is Highway 1; to the south, land use is residential.

West on the Embarcadero are local- and visitor-serving restaurants, motels, and parking lots. The harbor is bordered by the United States Coast Guard, the City of Morro Bay Harbor Department, and the North and South T Piers and numerous docks; these resources serve fishing boats and provide shoreside support. Also to the west are Coleman Park and Morro Rock City Beach recreation sites. Coleman Drive runs from the Embarcadero past Coleman Park to the Morro Rock parking area and the surf lookout. From the junction with Coleman Drive, Embarcadero Road continues north past the dunes of the Den Dulk property (situated between the MBPP and Morro Rock), where it currently dead ends at Morro Creek.

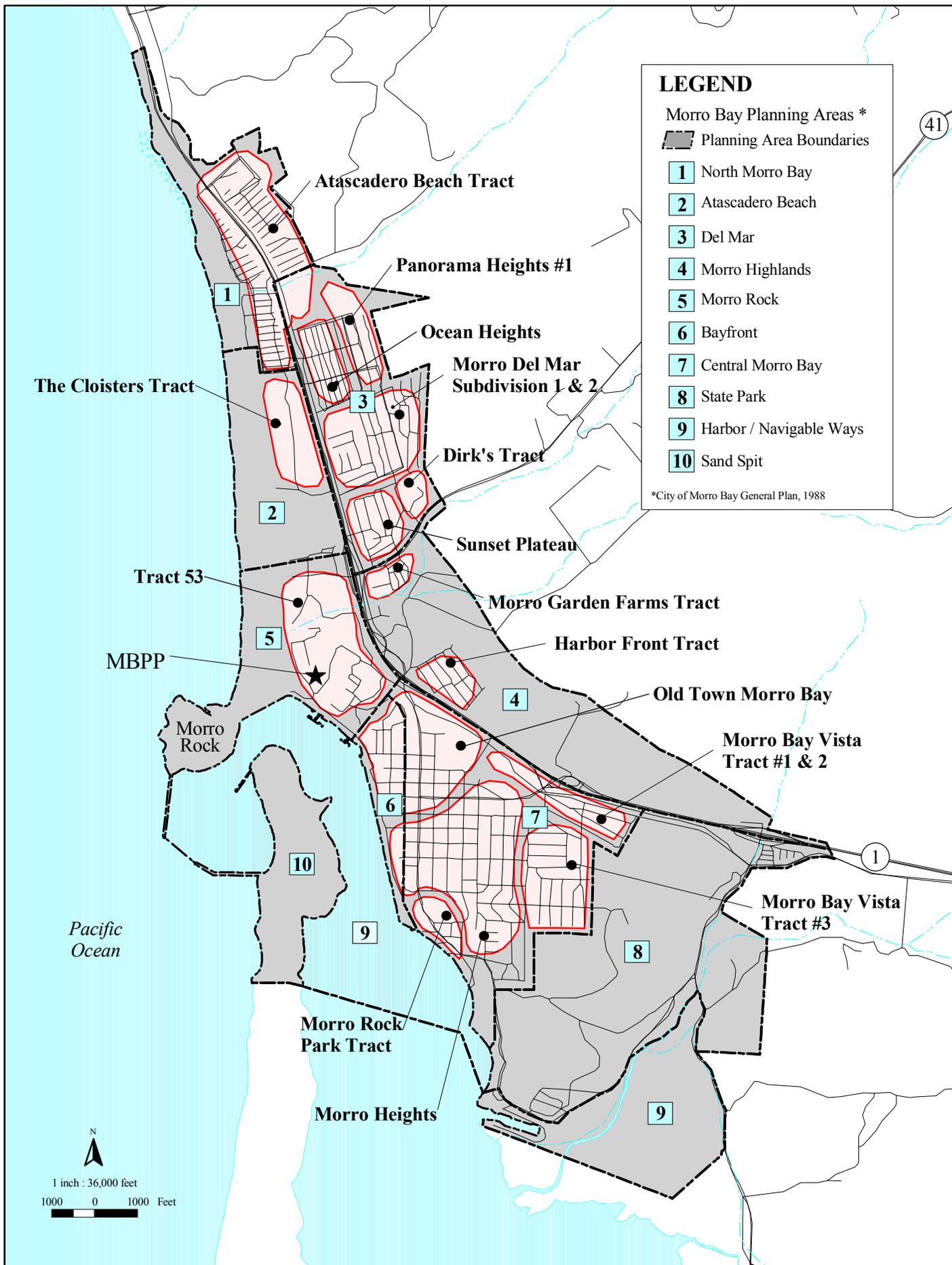
6.13.1.4 Visibility of MBPP From Local Neighborhoods

The City of Morro Bay General Plan (1988) identifies ten planning areas, as shown in Figure 6.13-3. The first seven of these planning areas encompass the 15 local neighborhoods; the last three are open spaces. For the purposes of describing views of the MBPP from local neighborhoods, Section 6.13.1.4 categorizes the General Planning areas and the neighborhoods within them into two groups based on location: (1) north of the power plant, or (2) south and east of the power plant. Neighborhoods are named herein as per their development tracts as recorded in the City of Morro Bay Public Works City Tract Map. Most neighborhoods do not have specific edges and tend to blend into one another. Although the tract areas usually fall into General Plan areas, some overlap does occur.

Views of MBPP From Neighborhoods North of the Plant

General Planning Areas 1, 2, 3, and 5 are north of the MBPP. The characteristics of the neighborhoods within these areas and the existing views of the MBPP are described in the following paragraphs.

Figure 6.13-3: Morro Bay Neighborhoods and General Plan Areas



North Morro Bay – General Planning Area 1

The Atascadero Beach Tract neighborhood is a flat area, located at the northern end of Morro Bay and bisected by Highway 1. Morro Strand State Park occupies the beach to the west and includes campsites and other recreation opportunities. Between the beach and Highway 1 is a development of single-family homes built in the 1960's and 1970's. Homes along Beachcomber Drive and parts of Sandalwood Avenue have ocean views with some partially obstructed views of the power plant.

The area to the east of Highway 1 is a mix of old beach cottages and renovated ones, with a commercial strip parallel to the highway. Many of the original beach cottages have been expanded to become two-story homes. Some of the homes, particularly those elevated on the margins of the hillside as shown above, have long-range views of the power plant.

Atascadero Beach – General Planning Area 2

The Cloisters Tract is a new neighborhood located between Highway 1 and the beach. The neighborhood's new single-family homes are currently under construction. There are strict guidelines in effect regarding building locations and tree height to preserve ocean views from Highway 1, as dictated by the Local Coastal Plan (1982). Morro Rock is plainly visible on the horizon. The power plant stacks are also visible, though the base and the main structure of the plant are screened by a row of vegetation around Morro Bay High School.

Del Mar – General Planning Area 3

The Del Mar Planning Area includes five neighborhoods: Ocean Heights, Panorama Heights, Dirk's Tract, Sunset Plateau, and two subdivisions within Morro Del Mar. The Ocean Heights neighborhood is mostly flat, with streets on a grid system. It contains both old beach cottages and newer two-story homes, as well as a commercial strip paralleling Highway 1. Views of the power plant from the second story of some homes are obstructed by other homes in the foreground. At the street level, homes and trees may block the view of the power plant. Orientation of the streets does not allow for any clear axial views of the plant.

Panorama Heights is a small neighborhood of newer two-story homes built into a hillside. The neighborhood borders Del Mar School and Del Mar Park. Panoramic views of nearly 180 degrees are commonly oriented toward the expansive coastline. Some long-range views include the power plant to the south, but most are oriented toward the coastline on the west.

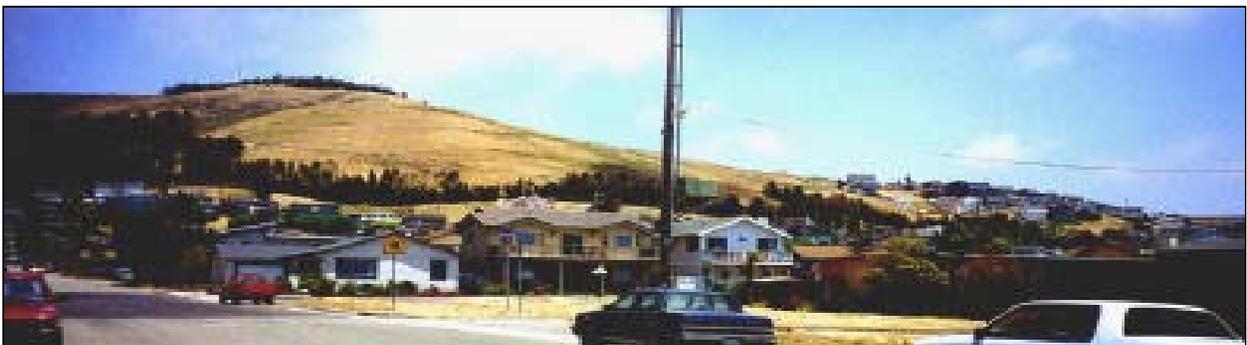
Photograph 6.13-12: View from Northeast Morro Bay – General Planning Area 1



Photograph 6.13-13: View of Cloisters Tract from State Highway 1 – General Planning Area 2



Photograph 6.13-14: Del Mar – General Planning Area 3



*Photograph 6.13-15: Morro Garden Farms – General Planning Area 4 is in the foreground
Morro Rock – General Planning Area 5 is across Highway 1*



Photograph 6.13-16: Morro Highlands (as indicated on photograph) – General Planning Area 4



The Morro Del Mar neighborhoods (subdivisions 1 and 2) mount the hillside to the east from State Highway 1. At lower elevations, the neighborhood consists mostly of small beach cottages with obstructed views of the power plant. Higher up on the hill, homes are larger and commonly have panoramic views of the coastline and unobstructed views of the power plant.

Sunset Plateau is a small neighborhood elevated on a knoll above Highway 1. This neighborhood consists of a commercial strip, a small trailer park along Main Street, and three churches along Ironwood. A few houses have a close-range view of the power plant.

Dirk's Tract consists of single-family homes on large lots, many of which are undeveloped. The area faces eastward toward the agricultural valley that is traversed by Highway 41. Views from Dirk's Tract are not generally oriented toward the power plant; any views that are so oriented are obstructed, and only the stack tops are occasionally visible.

Morro Highlands, General Planning Area 4, is to the east and south of the MBPP and is discussed in the section following Planning Area 5.

Morro Rock – General Planning Area 5

Commonly referred to as the industrial area of Morro Bay, Tract 53 is west of Highway 1 and south of Morro Bay High School. The area has several industrial uses: the MBPP, Morro Bay City Wastewater Treatment Plant, Morro Bay City Maintenance Yard, and an aggregate plant are located here. Other uses, separated from MBPP by Morro Creek to the south, include Flippo's Skate Harbor, motel, a trailer park and resort campground, RV storage, and Lila Keiser Park. The tall stacks of the power plant are plainly visible above the trees to the south, while the base of the plant is screened. Morro Bay High School, located just a few hundred yards from the ocean, is the only public high school in the area. The school has approximately 1,000 students in attendance.

Views of the MBPP from Neighborhoods to the South and East

Morro Highlands – General Planning Area 4

Two neighborhoods and a large undeveloped area lie in the Morro Highlands Area, east of Highway 1. Morro Garden Farms Tract, shown in the Photograph 6.13-15, is just south of Highway 41 and is an older mixed-use neighborhood with limited views of the power plant. Uses in this low-lying tract include mixed commercial, storage units, a mobile home park, and a few older houses. The principal commercial area runs along Main Street.

The Harbor Front Tract consists of newer two-story homes and rises up the hillside to the east of the power plant and Highway 1. Views of the power plant from the upper streets of this neighborhood are direct, particularly where there are vacant lots or streets heading down the hill to the west. Views from properties situated lower on the hill are partially screened by other structures and trees to the west. Some homes have unobstructed views of the power plant from the second floor.

Bayfront – General Planning Area 6

The Bayfront General Planning Area includes the portion of Old Town Morro Bay west of Main Street (a visitor-serving commercial area), and the Morro Rock Park Tract residential area to the south.

The bayfront area includes commercial and residential development targeting the tourist population. It is a visually diverse area, with cottages mixed with newer development. Accommodations include older motels, small trailer parks, newer hotels, condominiums, and apartments. Tourist attractions and shops are located along the Embarcadero and Market Street. While the power plant stacks are sometimes visible, urban development and landscaping often block full views of the power plant.

The Morro Rock Park Tract is a small neighborhood located south of Old Town next to the bay. Views are oriented toward the bay and sand spit. Because of the curvature of the bay and local topography, the Morro Rock Park Tract neighborhood has no view of the power plant.

Central Morro Bay – General Planning Area 7

Originally laid out in 1872, Old Town Morro Bay is a diverse area with cottages from the 1910's and 1920's, interspersed with older hotels, restaurants, small commercial enterprises, condominiums little trailer parks, and apartments. Morro Bay Boulevard runs perpendicular to Main Street, both of which form the commercial district serving both locals and visitors.

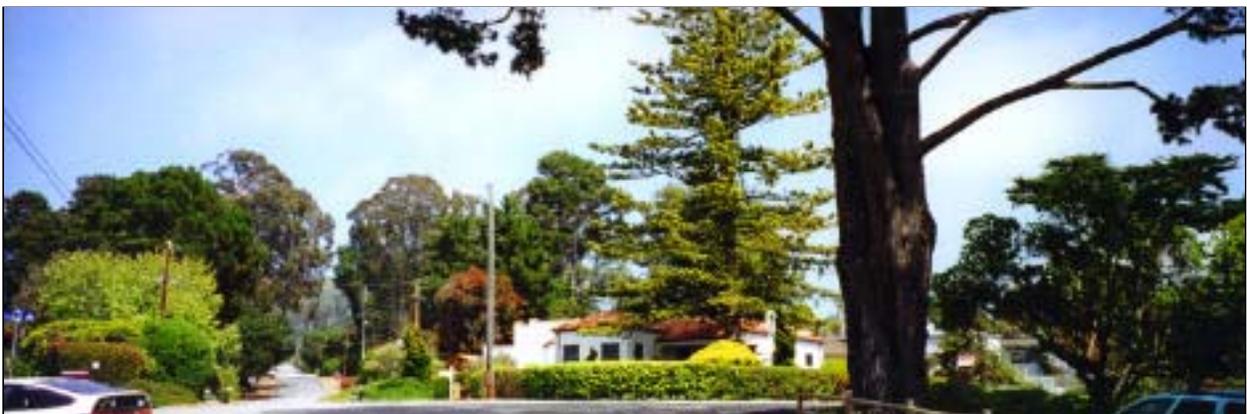
Photograph 6.13-17: The Bayfront – General Planning Area 6



Photograph 6.13-18: Main Street, Old Town Morro Bay – General Planning Area 7



Photograph 6.13-19: Morro Heights – General Plan Area 7



Photograph 6.13-20: Morro Bay State Park – General Planning Area 8



Photograph 6.13-21: Morro Bay Harbor – General Planning Area 9



Morro Heights is a hilly, tree-lined neighborhood dating from the 1930's and 1940's. Newer homes are interspersed with some apartment complexes and a trailer court. Topography, trees, and buildings generally obstruct long-range views of the MBPP, although some homes have views of the power plant from the second story.

Subdivided in the late 1920's, Morro Bay Vista Tracts # 1 and 2 contain a small neighborhood of almost uniformly tiny one-story cottages on small lots. This is an older neighborhood with very few views toward the MBPP. The few views of the power plant that do exist are found in the middle of the neighborhood streets, which are oriented with the MBPP at the visual terminus.

The Morro Bay Vista Tract # 3 neighborhood is located southeast of Morro Heights, and is sometimes thought of as an extension of the Morro Heights area. Streets in this neighborhood dead-end to the south against the Morro Bay Golf Course. The area is comprised of newer, mostly single-story homes. Views of the power plant are usually blocked by tall trees, residential structures, and the general topography of the Morro Heights area. When the stacks are visible, they line up behind one another in profile, giving the impression of a single stack.

State Park – General Planning Area 8

Morro Bay State Park is located in the southern part of Morro Bay, overlooking the Morro Bay Estuary. There are 135 campsites in the State Park, canopied by eucalyptus and pine trees. There are numerous hiking trails; the hike to the top of Black Mountain is a favorite among locals and visitors alike. The top of Black Mountain affords a 360-degree view of the Morro Bay Golf Course, Highway 1, the town of Morro Bay (with Morro Rock and the power plant beyond), the Morros, Montana de Oro headlands and Los Osos, Cayucos in the distance to the north, Piedras Blancas, the estuary, sand spit, the bay, and the Pacific Ocean.

Also in Morro Bay State Park, sited on a rocky bluff overlooking the bay, is the Morro Bay Museum of Natural History, an extensive resource of information about the history, ecology, and wildlife of the Central Coast, complete with displays.

Harbor / Navigable Ways – General Planning Area 9

This Planning Area incorporates the region within the city limits covered by bay water, wetland areas, and tidelands. The harbor is utilized for a variety of harbor-dependent uses including dockage and moorage, governmental, commercial and recreational navigation,

swimming, fishing, and mariculture. Morro Bay Harbor is the principal center for the commercial fishing industry along the Central Coast. The harbor has a complex of piers that extend into the harbor waters. The City of Morro Bay maintains approximately 70 moorings and 50 slips.

Sand Spit – General Planning Area 10

The Morro Bay Sand Spit Natural Preserve is one of Central California's most distinctive environments. The long and narrow sand spit separates the bay and estuary from the Pacific Ocean, with some of the higher dunes approximately 80 feet above sea level.

The surf, sky, sand, and dune vegetation contribute to the area's serene atmosphere. The Sand Spit Natural Preserve's environment supports black-tailed hares, bush rabbits, deer, raccoons, bushtits, finches, hawks and owls, among many other species. Coyote bush, salt grass, and heather are among the hardy plants thriving on the Sand Spit Natural Preserve, being drought-resistant, salt-tolerant, and low-growing.

Distant Views of MBPP From Beyond Morro Bay

Cayucos

The distance from the MBPP to the Cayucos public pier is over five miles, placing it outside the general study area. In developing this study, the view of the existing MBPP from the Cayucos public pier (shown below) was determined to be a long-range view in which the existing power plant and stacks are barely discernable.

Los Osos

The communities of Los Osos, Baywood Park, and Cuesta-by-the-Sea were also considered in this study due to the long-range distant views to the power plant from these communities. They are geographically between three and five miles from MBPP. Because of the topography and landscape, the existing stacks are visible.

Photograph 6.13-22: View of Sand Spit from Los Osos – General Planning Area 10



Photograph 6.13-23: View from Cayucos



Photograph 6.13-24: View from Cuesta-By-The-Sea



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6.13.1.5 Local Weather as it Affects Visibility

The City of Morro Bay Harbor Department began recording visibility daily in Marine Coastal Weather Logs on September 30, 1997. Visibility (in miles) is taken daily (normally two to four times per day) from in front of the Harbor Department office on the Embarcadero waterfront, across the street from the MBPP. Between September 30, 1997 and May 31, 1999, there were 53 days when the visibility was one mile or less during the day. During the same time period, there were 113 days when the visibility from the Harbor Department office was three miles or less, and 226 days when the visibility was five miles or less.

According to the logs, visibility of one mile or less tended to be caused by either rain or dense fog, while visibility of up to three miles tended to be caused by drizzle, light rain, or hazy fog. Visibility with a limit of five miles was usually caused by haze.

During calendar year 1998, August was the foggiest/haziest month, with 23 days recorded in the City of Morro Bay Harbor Department's daily logs when visibility was five miles or less. In May 1999 there were 20 days recorded with a visibility of five miles or less. Typically, but not always, afternoon visibility is greater (in miles/distance) than morning visibility.

According to Continental Weather Services, periods of reduced visibility (fog, haze, low clouds, etc.) tend to occur more frequently from May to October than at other times of the year. When land heats up on summer days, cooler, moist air is drawn off the ocean and forms the fog common along much of California's coast. During this early morning period, sea fog and mist can reduce visibility to less than one-half mile.

From July through October, visibility is reduced to less than six miles at least one-fifth of the time. Greater reductions in visibility are more common during this period than at other times of the year. For instance, visibility was reduced to less than three miles between 10 and 15 percent of the time in 1998, and less than one mile approximately 5 to 10 percent of the time. During the remainder of the year (November to June), reduced visibility is less common, although no month is completely exempt.

6.13.1.6 Viewer Sensitivity

Viewer sensitivity has been evaluated in two different ways for the purposes of this report: by distance and by type of viewer. There are three types of viewers identified for this study. All are considered equal in terms of sensitivity:

- Residential – Those people living in the region, based on 1990 Census data
- Recreational – Visitors to State Beaches and local attractions, actual visitor counts
- Mobile – Traffic counts, measured in average daily vehicles by the City of Morro Bay and Caltrans.

Duration of view for these different viewing populations varies. Residential view duration is typically several hours per day, while recreational viewer duration is usually a lower number of hours per visit. Mobile view duration is typically in minutes per vehicle or per vista. Distance is the other factor affecting viewer sensitivity; objects recede from view as distance increases. Atmospheric and weather conditions are the second aspect of distance, which can reduce overall visual clarity, particularly as distance increases. Table 6.13-1 presents the population of each General Plan area in relation to their distance from the new power plant. The numbers were calculated by analyzing 1990 U.S. Census Bureau data in a GIS.

Table 6.13-1: Population Data by General Plan Area and Distance from MBPP

General Plan Area		Distance from Power Plant (miles)								
		0.5	1	1.5	2	3	4	5	>5	Total
Population of Morro Bay General Plan Areas to the North of the MBPP										
1	North Morro Bay	-	-	100	900	700	-	-	-	1,700
2	Atascadero Beach (Cloisters)	-	-	-	-	-	-	-	-	-
3	Del Mar	-	900	1,500	-	-	-	-	-	2,400
sub-total		-	900	1,600	900	700	-	-	-	4,100
Population of Morro Bay General Plan Areas to the South and East of the MBPP										
4	Morro Highlands	-	600	-	100	-	-	-	-	700
5	Morro Rock	-	-	-	-	-	-	-	-	-
6	Bayfront	200	300	-	-	-	-	-	-	500
7	Central Morro Bay	-	1,000	2,500	300	-	-	-	-	3,800
8	State Park	-	-	-	200	300	-	-	-	500
9	Harbor and Navigable Waterways	-	-	-	-	-	-	-	-	-
10	Sand Spit	-	-	-	-	-	-	-	-	-
sub-total		200	1,900	2,500	600	300	-	-	-	5,500
Morro Bay Sub Total		200	2,800	4,100	1,500	1,000	-	-	-	9,600
Areas Outside Morro Bay										
Population of Distant Towns and Residential Areas to the South and Southeast										
	Los Osos (a)	-	-	-	-	-	7,100	5,900	1,700	14,700
	Cuesta College								100	100
sub-total		-	-	-	-	-	7,100	5,900	1,800	14,800
Population of Distant Towns to the North										
	Cayucos	-	-	-	-	-	600	800	1,500	2,900
Population of Rural / Non-Urban Areas										
		-	-	-	100	200	300	200	n/a	800
Total		200	2,800	4,100	1,600	1,200	8,000	6,900	3,300	28,100

(a) Includes Cuesta-by-the-Sea and Baywood Park

For locations of the material referenced in the table, please refer to Figure 6.13-4, a map depicting the density of population per square mile with an overlaid visibility analysis

showing where the existing 450-foot stacks are both potentially visible and not visible. Areas where the stacks are not visible are shaded in. This information relies on theoretical line-of-sight mapping based on topography and stack heights only. It does not consider obstacles such as vegetation or structures within the areas of potential visibility, which have significant effects on actual views. For the purposes of this study, visibility is defined as the potential to view any portion of the stacks in the absence of vegetation or structures.

6.13.1.7 Existing Viewshed Analysis

The existing tall stacks are potentially visible from the non-shaded areas identified in Figure 6.13-4. The topography of the coastal hills and the ocean combine to define seven sections of the viewshed. Populations referenced in this discussion are from the preceding Table 6.13-1. Clockwise from the north, the seven sections are:

- Coastal Areas North of Toro Creek to Cayucos— This area has distant views ranging from three to seven miles. Most views from this area are over the water, though some of the nearer views (from near Toro Creek) are looking directly down the beach. The stacks and the main structure are barely discernable from these distances on clear days. Most of the 2,900 people in this area live along the coast within this viewshed.
- North Morro Bay— Views of the plant in this area are diverse in distance, ranging from views abutting the plant to those from a distance of approximately 2.5 miles. Some views are from the beach or the flats, while others are elevated. With the exception of the beach, most views are from residential neighborhoods where homes, trees, and cars can obscure views. The population of these neighborhoods is approximately 4,100 people. Distance, atmospheric conditions, and the presence of dunes are the main factors affecting the view toward the plant from the beach.
- Highway 41 Corridor— Views from Highway 41 extend out 3.5 miles. The land use in this area is mostly agricultural and populations are low. Most viewers in this area are driving westbound on Highway 41, where Average Annual Daily Traffic is 4,400 vehicles.

Views of the plant tend to be sporadic, with one notable exception, where the view from about two miles away from the plant is uninterrupted. The tall stacks can also be seen from more distant vantage points on westward-facing slopes and hill tops.

- Highway 1 Corridor — The Morro Highlands neighborhood has the most proximate views (from one half to two miles), generally from elevated hill slopes. The population of Morro Highlands is about 700 people. Highway 1 between Morro Bay and San Luis Obispo follows the agricultural valley floor, which is directed toward the power plant. This highway alignment allows for direct views of relatively long duration for northbound motorists. More distant views from Highway 1 range from two to nearly six miles away, where populations are low. As with the Highway 41 corridor, other less accessible views can be obtained from westward-facing slopes and hilltops.
- South Morro Bay — The neighborhoods of Old Town Morro Bay, within General Plan Areas 6 and 7, have a relatively high combined population of about 4,300 people. The closest views from this area are from Scott Street, southeast of the power plant. Other direct views are from the Embarcadero and Bayfront areas. Structures and mature landscaping within the historic center of town create obstacles to viewing the MBPP. The visual impact of the power plant from this area is also limited by the fact that the street grid is not on axis with the MBPP, and the row of tall stacks from this vantage point is seen in profile, creating the illusion of a single stack
- Los Osos and Morro Bay — Views from Los Osos range from between three and five miles distant. According to the 1990 Census, 7,100 people live within three and four miles from the plant, and another 5,900 people live between four and five miles away. Another 1,700 people live beyond the five-mile study area. As in other residential areas, the presence of structures, vegetation, and topography limits views for many of these residents. Most of the views of the MBPP are with Morro Bay in the foreground, with the sand spit to the left and the estuary to the right. Views of the MBPP from a boat on Morro Bay originate from about one to four miles away

Duke Energy Morro Bay, L.L.C.

Existing Stack Visibility on Population Density

Visibility Analysis *

Existing Stacks NOT Visible

Population Density

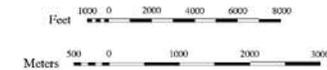
Potentially Visible Not Visible

		Less than 10 persons / sq mi.
		10 to 100 persons / sq mi.
		100 to 500 persons / sq mi.
		500 to 1,000 persons / sq mi.
		1,000 to 10,000 persons / sq mi.
		More than 10,000 persons / sq mi.

* Theoretical line of sight mapping based on topography and stack heights — does not consider effects of vegetation and structures which may significantly limit actual views. Visibility defined as having view of any portion of the new stacks. (Minimum mapping unit approx 0.5 acre)

* New Project Location

Scale 1 : 72,000

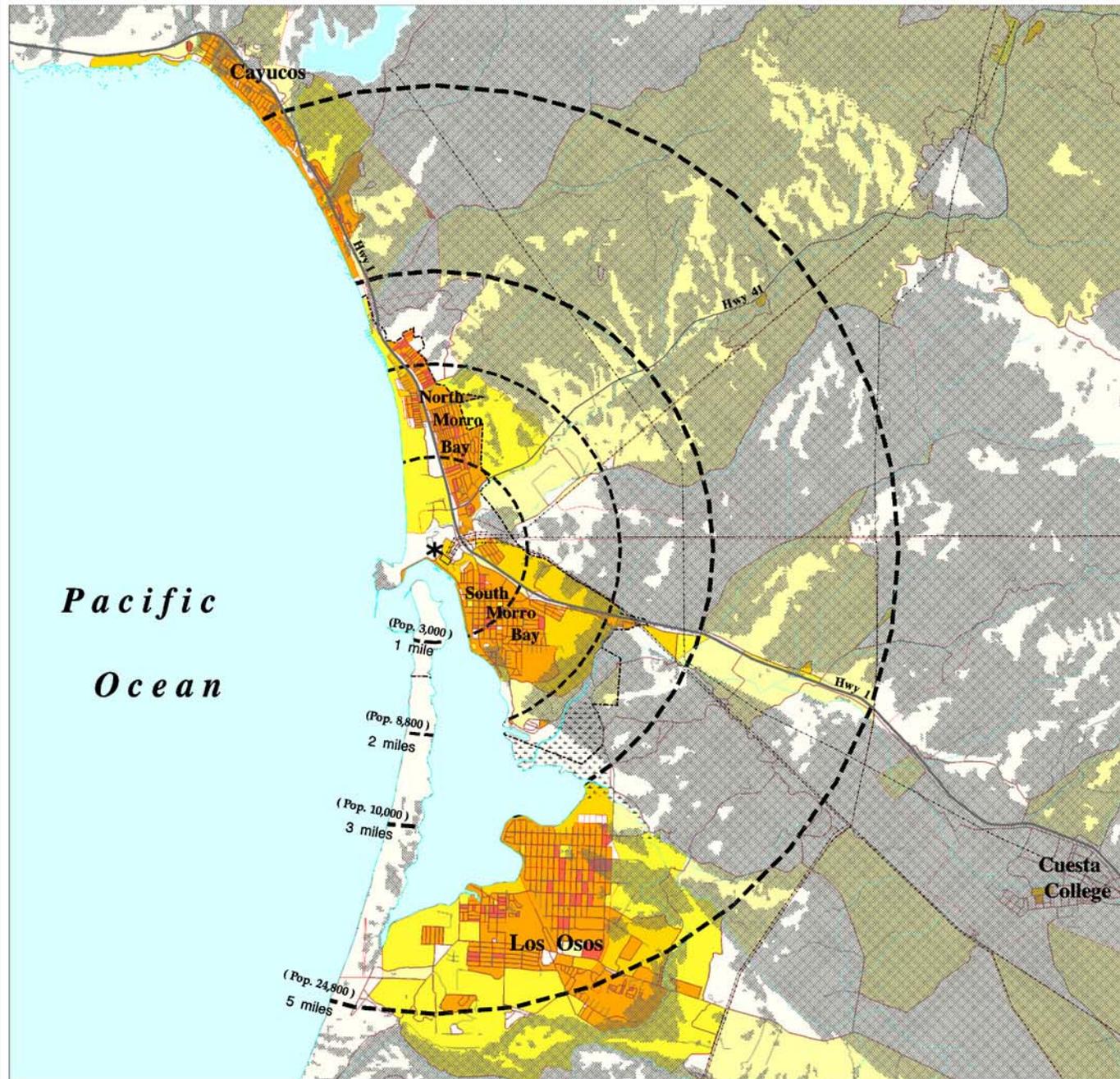


1" = 6000 feet



GIS Mapping by **EDAW, Inc.** — San Francisco

10/12/00



SOURCES: US Department of Commerce —Tiger (1995) with Census Data (1990) / Cal Poly GIS (1999) / USGS —DEM

- Estero Bay and the Pacific Ocean — Views of the MBPP from the Pacific Ocean are directly related to distance. Fishermen and local boaters use the power plant stacks as a beacon to guide them home. However, there are areas where the stacks are completely blocked by Morro Rock, generally in a west-southwest direction from the MBPP. This area where the Rock obscures views of the power plant from the Pacific Ocean is wedge-shaped, getting larger as it moves away in a west-southwest direction from the power plant.

6.13.1.8 Local Plans and Policies

Local plans and policies relevant to visual resources are contained in two documents:

- City of Morro Bay Land Use Plan of the Local Coastal Program
- City of Morro Bay General Plan and Zoning Ordinances

The Morro Bay Land Use Plan of the Local Coastal Program (LCP) sets policies, standards, and objectives to guide coastal land use decisions. The City of Morro Bay General Plan and Zoning Ordinances implement policies defined in the LCP. For verbatim excerpts from these documents and Project conformance, see Section 6.13.4. The Waterfront Master Plan is not applicable to this application because the MBPP is outside its study area boundary.

Morro Bay Land Use Plan of the Local Coastal Program (LCP)

The LCP addresses Visual Resources and Community Character, with the intent, as stated in the California Coastal Act, that “scenic and visual qualities of coastal areas are to be considered and protected as a resource of public importance with full consideration to private property rights.” The LCP includes goals and policies to protect, restore, and where feasible enhance visual quality in visually degraded areas. It stresses that any development permitted in scenic areas should be designed and located to be visually compatible with, and subordinate to, the natural setting.

The LCP defines scenic views as: “something that is looked at which has significant man-made or natural qualities and which contributes to the identity of the area.” It notes that the main facility at the Morro Bay Power Plant, with its three stacks extending skyward, is a part of the visual character of the community.

Visual resource issues directly related to the MBPP are included in policies in the section on Energy and Industrial Development. This includes a discussion of the Coastal Act and the California Energy Commission. The Coastal Act distinguishes between “coastal-dependent” industrial facilities, which include thermal power stations, and other types of industrial facilities. Coastal-dependent industrial facilities are encouraged to locate or expand within existing sites and are permitted reasonable long-term growth. Visual resource policies in the Energy and Industrial Development section are intended to protect views of Morro Rock from Highway 1 and other visitor areas should plant expansion take place. Also, new and existing facilities resulting from plant expansion should be screened from these areas, particularly from Highway 1.

City of Morro Bay General Plan

The General Plan incorporates and implements visual resource policies from the LCP. The General Plan has seven policies related to visual resources: Scenic Roadway Establishment; Protection of Coastal Area’s Visual Resources; Implementation of LCP; Landscaping Standards; Property Maintenance Standards; Utility Under-grounding; and Roadside Amenities. For each policy, a number of specific programs are recommended.

City of Morro Bay Zoning Ordinances.

Coastal-Dependent Industrial (M-2) District provides for industrial development of facilities that require a site on or close to the ocean or harbor. Thermal power plant and support facilities are a permitted use, provided that a landscape concept is prepared.

6.13.1.9 Visual Quality Assessment

Per the California Energy Commission’s data requirements, a visual quality assessment was conducted as part of the inventory of existing visual conditions. The assessment, presented in Table 6.13-2, evaluates the landscape units discussed previously and is a relative, rather than absolute, tool for evaluating visual quality.

This visual quality assessment is based on a system developed and in use by the United States Department of Interior, Bureau of Land Management (BLM), documented in BLM Technical Manual Series H8410-1, dated January 17, 1986. Residential nodes are excluded due to the fact each of the nodes has a different cultural character not recognized by the system.

This assessment consists of seven criteria: landform, vegetation, water, color, influence of Morro Bay Power Plant

adjacent scenery, scarcity, and cultural modifications. The character and quality of each landscape attribute is rated individually relative to other lands in the region. The process is based on numerical ratings of 1-5 for most criteria (with the exceptions of water and influence of adjacent scenery, which range from 0-5, and cultural modifications that range from -4 to +2). A higher number indicates better visual characteristics for that element. The numbers represent a judgement regarding the character and quality of each element on the scale provided.

Table 6.13-2: Visual Quality Ratings

Criteria	Landscape Units						
	Grassy Coastal Hills	Ancient Volcanic Hills	Ocean, Beach & Dunes	Morro Bay & Harbor	Estuary, Wetlands & Lowlands Complex	Valley Floor, Existing & Potential Agriculture	Industrial Area
Landform	3	5	4	2	2	1	1
Vegetation	2	4	3	2	3	3	1
Water	0	0	5	4	4	1	0
Color	3	4	4	3	3	2	1
Influence of Adjacent Scenery	3	3	3	3	3	3	3
Scarcity	3	4	4	4	5	2	4
Cultural Modifications	1	0	-1	2	0	1	-4
Final Rating	15	20	22	20	20	13	6

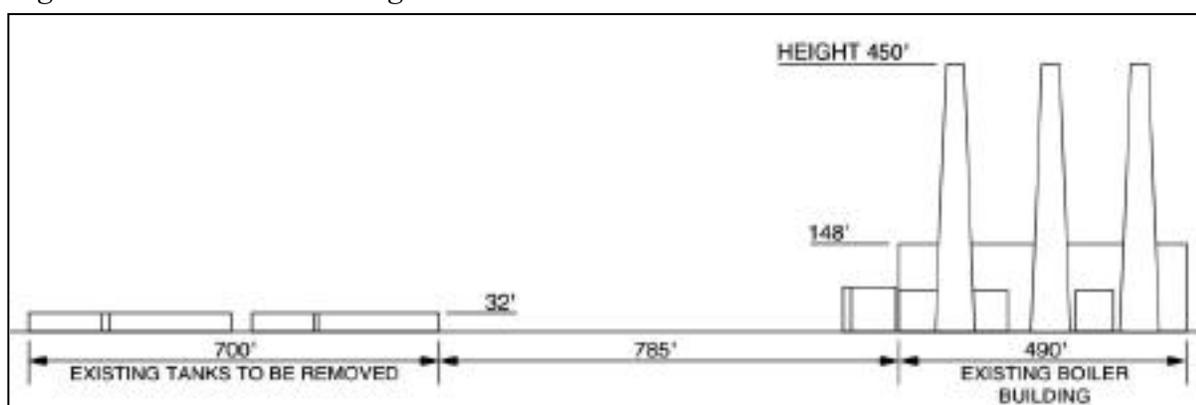
This visual quality analysis rating technique has its most obvious application when siting new facilities within various landscape units where a range of choices exists. The intent is to identify lands of higher scenic quality to minimize or avoid disturbance. In this case, all project modifications are in the industrial area, which is the area rating lowest in visual quality.

6.13.1.10 Existing Power Plant

The existing MBPP is a large-scale industrial complex with 1950's-vintage power generation and fuel storage facilities. The site is 107 acres, not including the PG&E switchyards adjacent to the eastern site boundary, which encompass an additional 24 acres.

Major facilities include five fuel oil storage tanks and one displacement oil tank at 32 feet high, and three 450-foot high exhaust stacks. The main structure is the large steam turbine generator building, which is approximately 150 feet high, 300 feet wide, and 500 feet long. Figure 6.13-5 shows the size relationship of the existing facilities to one another. Figure 6.13-6 shows a site-plan for the existing facilities. One seawater intake structure, located across Embarcadero from the MBPP in Morro Bay Harbor, houses eight cooling water pumps and related auxiliary equipment to supply cooling water to the units.

Figure 6.13-5: MBPP Existing Conditions



MBPP Existing Industrial Materials

The industrial materials that comprise the MBPP are large in scale. The steel power building, with its concrete foundation and aluminum siding (approximately 150 feet tall, 300 feet wide, and 500 feet long) houses boilers and steam turbines for all four existing units. The power building's lower section, over the turbines, is approximately 85 feet high, and the taller section, over the boilers, is approximately 150 feet tall. Because this equipment is contained within a building and therefore inaccessible to an exterior crane for maintenance and repair, the building is necessarily twice as tall as the installed equipment to accommodate a crane. The three stacks are concrete with steel reinforcement. The tank farm was decommissioned a few years ago, when the power plant stopped using fuel oil. Now the fuel used is natural gas, which is piped in from the Kettleman compression station through underground pipes that enter the property from the north. The ground surface is pavement, and the site is free of debris. Shops and offices within modular buildings are located behind the industrial complex.

6.13.1.11 Existing Night Lighting

Existing night lighting from the power buildings is generally of low intensity, though some upward glare from older lighting equipment does occur. A brighter glare emanates from the PG&E switchyard, adjacent to the plant. Warning beacons on top of the stacks conform to the Federal Aviation Administration (FAA) Obstruction Marking and Lighting Advisory Circular (October 1985).

6.13.1.12 Existing Visible Water Droplet Plume

A visible water droplet plume can be seen exiting the exhaust stacks from the existing Units under certain meteorological conditions. These conditions are typically associated with cooler temperatures and high relative humidity. A water droplet plume is visible during certain hours more than half the days in a year. Due to operational differences, a visible condensate plume rarely forms from the exhaust exiting the single stack that services units 1 and 2.

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6.13.2 IMPACTS

This section describes the Project, the process of evaluating visual resources in Morro Bay, and the measurement and analysis of the visual impacts. This section documents the efforts Duke Energy has made to address City concerns about visual resources and to develop the Project to reduce potential visual impacts. Viewsheds are evaluated as they relate to the General Planning Areas of the City of Morro Bay, and the neighborhoods within them. The process of selecting, measuring, and analyzing the Key Observation Points (KOPs) is documented here, and the existing and proposed conditions as viewed from each of the KOPs are presented. Finally, a summary of visual effects follows the KOP images.

6.13.2.1 Significance Criteria

An impact may be considered to have a significant effect on the environment if “[a] Project has the potential to degrade any quality of the environment” [Public Res. Code Section 21083(a); 14 CA Code of Regulations Section 15065(a)]. The significance criteria used for this study are primarily based on: CEQA Guidelines, Appendix G, Environmental Checklist Form (approved January 1, 1999); performance standards or thresholds adopted by responsible agencies; and the California Energy Commission's Rules of Practice and Procedures & Power Plant Site Certification Regulations regarding Visual Resources (February 1997). An impact may be considered significant if the Project results in:

- A substantial adverse effect on a scenic vista.
- Damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
- Substantial degradation of the existing visual character or quality of the site and its surroundings.
- Creation of a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

6.13.2.2 The Project

Duke Energy proposes to modernize and increase generating capacity at MBPP to 1,200 megawatts (MW) an increase of 198 MW. The location of the Project is within the existing MBPP and is approximately 600 feet northeast of the existing tall stacks, in the area of the existing fuel storage tank farm. The new generating units would occupy approximately 8 acres. Construction of the two new generating units would be in a single construction phase.

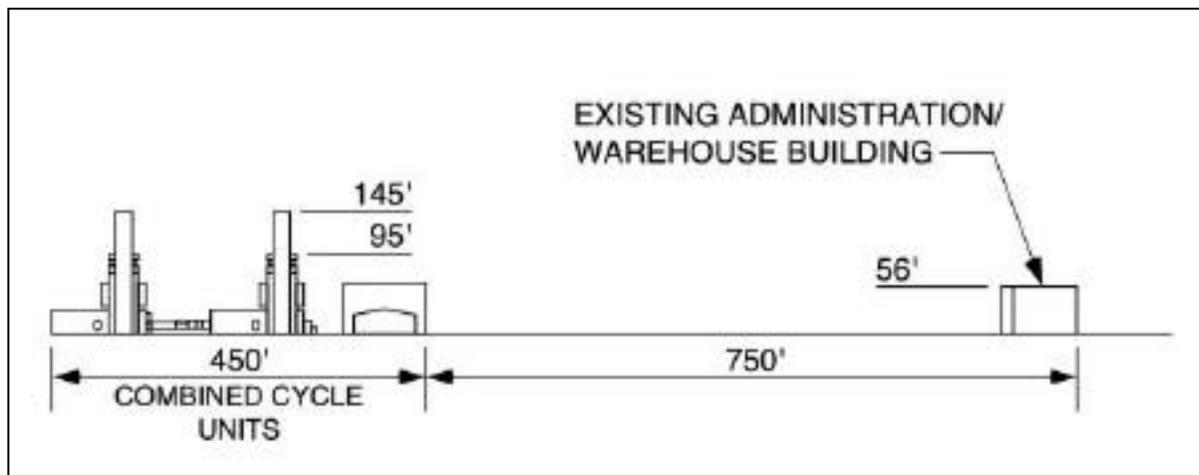
The new units would replace the current generation Units 1 and 2 (326 MW), which are 1950's technology, and Units 3 and 4 (676 MW), which are 1960's technology with state-of-the-art 600 MW combined cycle units. Each of the two new combined cycle units would be capable of producing 600 MW, so that upon completion, the Project would be capable of producing a total of 1,200 MW. Each new unit would consist of two gas-fired turbines and one steam turbine driven by the heat produced by the other two turbines. Each of the two new units would have two, 145-foot tall stacks. They would be substantially more efficient and use less natural gas and less cooling water than the existing power plant to generate an equivalent amount of electrical power.

Demolition of the existing power plant facilities is also part of the Project. The facilities to be demolished include: the large boiler – steam turbine complex (148 feet tall and 490 feet long), three 450-foot tall exhaust stacks, and six on-site oil storage tanks.

Other construction related to the Project includes: a 2,500 square-foot control room to house the Distribution Control System and plant operations personnel, renovation of the exterior of the sea-water intake structure, and installation of a single lane access bridge across Morro Creek.

The Project would provide intermediate load power for voltage support within the grid and improve electrical service reliability for the Central Coast communities, as well as the Fresno and Bakersfield communities. Major equipment and building dimensions are depicted to scale in Figure 6.13-7, including a comparison of the existing and proposed plants. Figure 6.13-8 includes a more detailed site plan for the Project.

Figure 6.13-7: Proposed Modifications



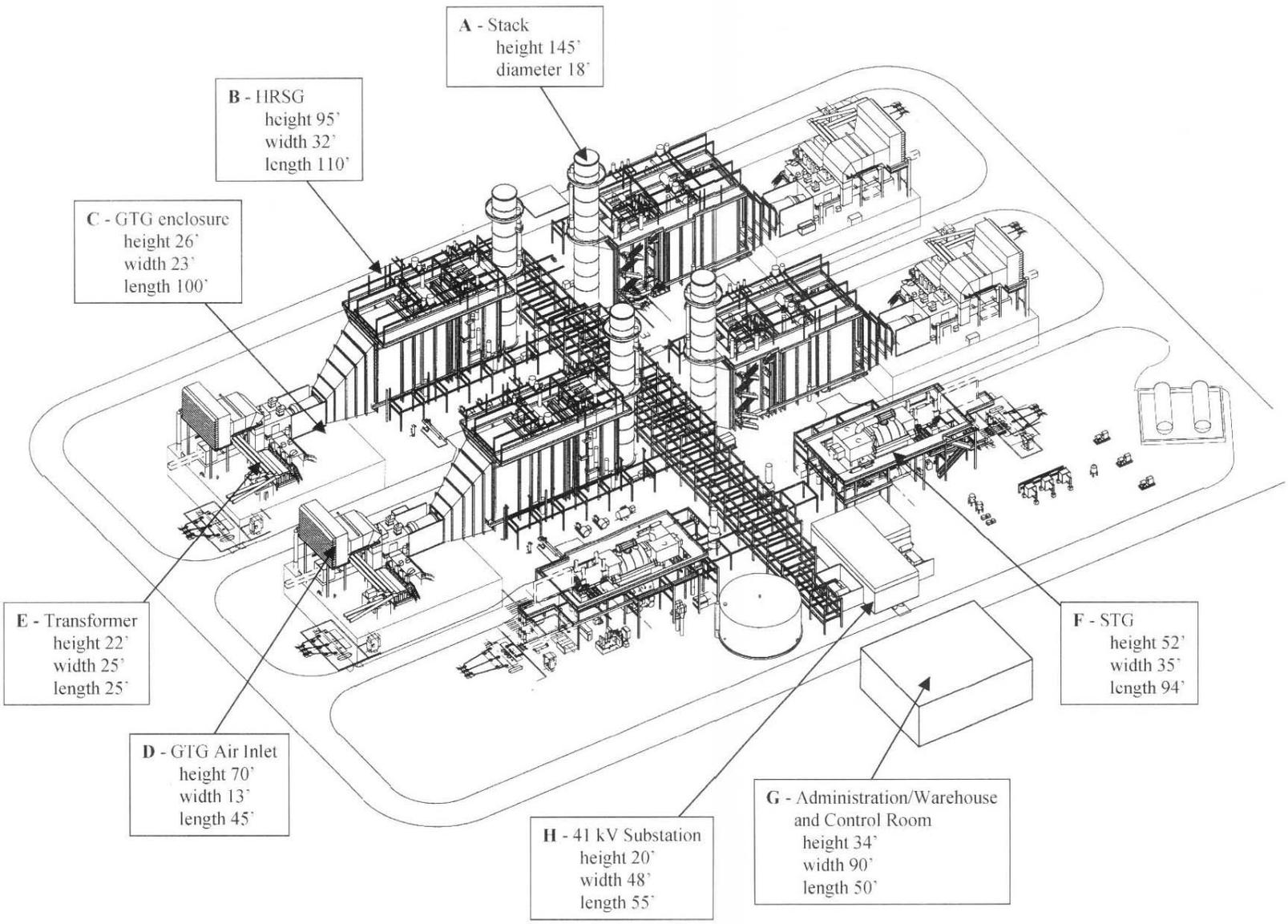
**Major Equipment Sizes
Morro Bay Power Plant**

LEGEND

- A - Stack
- B - Heat Recovery Steam Generator (HRSG) Unit
- C - Gas Turbine Generator (GTG) Enclosure
- D - GTG Air Inlet
- E - Transformer
- F - Steam Turbine Generator (STG)
- G - Administration/Warehouse and Control Room
- H - 41 kV Substation

*Duke Energy
Morro Bay, L.L.C*

Source: Duke/Flour Daniels; EDAW, Inc.



6.13-49 Figure 6.13-8

Because the MBPP is an existing facility, the typical infrastructure needed to support a power plant is currently in place and would not need to be constructed. Only short generation ties between the Project and the existing PG&E 230 kV switchyard adjacent to the property would need to be constructed; no other new transmission lines or upgrades are required. Natural gas for the overall facility would be delivered via PG&E's existing pipeline from the Kettleman Compressor Station, approximately 70 miles from the Project. The existing pipelines into the PG&E metering station are adequately sized to accommodate the Project's fuel demand. The Project would be connected to the existing regulator station via short segments of a new on-site natural gas pipeline. To create the pressure required for the combustion turbines, the Project would include the addition of an on-site electric compressor station for the combined cycle units.

6.13.2.3 Design Considerations for Reduced Visual Impact

A variety of design considerations have been included, in part because of input from the City of Morro Bay, into the Project to reduce visual impacts. The bulleted points introduced here are described further in the discussion below.

- Removal of the existing power plant and stacks
- Removal of the tank farm
- Minimized height and bulk of the new power plant structure
- The location of new units on the site
- Pipe rack locations
- The use of combined stacks considered
- Color
- Sound Wall
- Landscaping

Removal of Existing Power Plant and Stacks

Removal of the existing large steam-boiler turbine building and the three 450-foot tall stacks would significantly improve the view from all locations that currently have a view of the existing power plant, both from within Morro Bay and from the surrounding community. Based on 1990 census data, Table 6.13-1 shows that nearly 25,000 residents living within five miles would have improved views, or direct access to improved views as a result of this

action. In addition, 1997 Average Annual Daily Traffic Counts indicate 26,400 motorists on an average day would also have an improved view as they drive into the City of Morro Bay. This represents a dramatic benefit to the City of Morro Bay and the region.

Removal of the Tank Farm

Construction of the generation facilities will be on the tank farm site and removal of the five tanks there is part of the Project. Removal of the obvious cylinders will be of great benefit to the residents living in the surrounding hills. Removal of the tanks will generally reduce the horizontal field of view that is currently occupied by industrial facilities. Close up views will also be improved as a result of the removal of the tanks.

Minimized Height and Bulk of Structure

In response to comments from the community to reduce the height of all structures built as a part of the Project, Duke Energy has designed and positioned the Project on the MBPP site to minimize the apparent height, bulk, and views of the structures. Wherever possible, design elements have been incorporated to improve views of Morro Rock and the waterfront.

Various levels of building enclosure were examined, such as a fully enclosed facility versus a partially enclosed facility, as illustrated in Figures 6.13-9 and 6.13-10.

Figure 6.13-9: Partially Enclosed Facility, as proposed.



Figure 6.13-10: Fully Enclosed Facility, blocks views



As a result of this evaluation, the Project would use low enclosures that **conceal the equipment and most of the piping from near views, and permit exterior crane access to the equipment for operations and maintenance, as shown in Figure 6.13-9.** Another benefit of using the low buildings is the height of the stacks can be kept to a minimum.

The Location of New Units on the Site

Four alternative configurations and locations on the site were presented to the public for review in three City of Morro Bay sponsored meetings on May 11, May 13, and May 16, 2000. Public comments received at those meetings clearly supported the configuration presented in this application. In a separate exercise the Duke design team evaluated the four alternative configurations as they could effect noise, and visual resources. In that exercise too, the configuration presented here, was clearly the preferred alternative. The other three configurations evaluated included:

- a. Clustered Stacks Sited Farther to the East
This reduced the apparent stack height as viewed from the surrounding hills but had a negative effect on the Environmentally Sensitive Habitat Area to the East.
- b. Stacks Aligned Along the Northern Berm
Most citizens did not like the visual effect of this configuration, and the Duke design team felt that this configuration could be noisier.

c. Split Configuration – Pairs of Stacks at Right Angles to Each Other

Citizens had a similar response to this configuration as they did to the stacks aligned along the northern berm. The design team also had similar concerns about potential noise affects of this configuration.

The selected alternative locates the Project away from the existing turbine building and reduces the height of other Project structures by minimizing the size of the buildings. Because of the separation distance, the existing structure does not influence the stack height, and permits the stacks to be the lowest possible height, which is 145 feet. The Project has been located as far east on the site as possible, without affecting the Environmentally Sensitive Habitat Area, to keep it away from the beach and to minimize the apparent height of the stacks when viewed from above in the surrounding hills. To minimize visual impacts for those with direct views to the Project, such as from the Harbor Front Housing tract, the Project has also been aligned to minimize the bulk of the viewed elevations.

Pipe Rack Locations

Pipe racks have been placed between the major structures of the Project so that the pipes will no longer be required to pass over the top of the HRSG structures. As a result the pipes will be lower to the ground and screened from view by the larger structures of the Project.

The Use of Combined Stacks Considered

The idea of combining two stacks into one, such that there would be only two stacks rather than four stacks was also considered. However, the diameter of the combined stack would have been over twice the diameter of the single stacks and would have resulted in very bulky towers that would have obscured more of any particular view.

Color Selection

Duke Energy in conjunction with the City of Morro Bay, would select the paint colors for stacks and buildings that enable the Project to blend into the background as much as possible. Because color is such an important issue to many of the people potentially viewing the Project, no specific color selections have been made as a part of this application. However, the images in Figure 6.13-11 partially illustrate the range of options and the benefits of carefully selected colors. Visual impact conclusions presented in this AFC are not based on any assumptions regarding choice of color.

Power Plant Color Study

Duke Energy Morro Bay, L.L.C.

Scheme 1: Browns



Scheme 3: Rust Browns



Scheme 2: Blues



Scheme 2: Greens



SCHEME 1 : BROWNS

Stack & Platforms	Falls Blue
HRSG	Dark Brown
Air Intake	Chocolate Brown

SCHEME 2 : RUST BROWNS

Stack & Platforms	Dawn Grey
HRSG	Pale Cherry
Air Intake	Burnt Sienna

SCHEME 3 : BLUES

Stack & Platforms	Falls Blue
HRSG	Blue
Air Intake	Raleigh Blue

SCHEME 4 : GREENS

Stack & Platforms	Storm Green
HRSG	Nesika Bay Green
Air Intake	Forest Shade

Source: Duke Energy, L.L.C./EDAW, Inc.
P:\1999\9S009.01\PM65\COLOR-STUDY02.P65
September 18, 2000

Sound Wall

A 20 foot high sound wall would be located on the top of embankment just south of Morro Creek and the Fisherman's storage facilities. Placement of the sound wall would avoid the existing trees on the embankment and it has been curved to add visual appeal. It will also curve around the western embankment briefly to screen the beach north of the Project.

Landscaping

As part of the Project, landscaping would use native and appropriate plant materials to blend and screen the elements of the power plant into the Morro Bay landscape. In certain areas, screening would limit views of the Project, while in other areas, in response to city requests, planting would be low growing native dune plants in keeping with the beachfront landscape. In all cases, plants have been carefully selected to meet the needs of the individual microclimates, the tough growing conditions, and the environmentally sensitive habitats found along Morro Creek. The landscaping Concept is presented in Attachment 6.13-1.

The Project's landscape concept is consistent with the Morro Bay General Plan (GP) and the Local Coastal Plan (LCP) polices, which are fully detailed in Section 6.13.4, Applicable Laws, Ordinances, Regulations, & Standards. The landscaping protects coastal views and opens new views to the bay, Morro Rock, and the Ocean, from the Harbor Front Tract and Scott Street neighborhoods. Visual resources along Scenic Highway 1 and Highway 41 view corridors are also enhanced and protected. New community pedestrian/bike paths provide access between Main Street, the Embarcadero, the harbor and the beach.

The landscaping would beautify the Morro Bay Power Plant property, particularly in those areas viewed by locals and tourists, such as the Embarcadero Road area and Scenic Highway 1. The lush color and texture will improve the visual experience along Embarcadero Road.

Landscaping along Embarcadero Road would feature native drought-tolerant plants in the landscape bordering the MBPP and would provide increased acreage of habitat areas planted with appropriate species in the Morro Bay area, including California native species. Two MBPP landscape areas are planned for native revegetation and restoration: (1) the area of the existing tank farm east berm, which borders the Environmentally Sensitive Habitat (ESH) areas of Willow Camp Creek and Morro Creek; and (2) the tank farm west berm area and northern dune area. The restoration of these habitats to a more natural state would increase biodiversity of on the site. Exotic species and non-native plants would be removed and appropriate plant stock from seeds and cuttings collected on site and nearby would be propagated, then planted in these two areas.

Duke Energy is committed to the responsible stewardship of the Morro Bay Power Plant property, both in the short and long term. Responsible stewardship includes the maintenance of the landscape and site structures. For example, the water intake structure would be refurbished to add to the waterfront character. Maintenance of the landscape includes an ongoing vegetation management program incorporating water conservation techniques, restoration of coastal dune scrub habitat and protection of the Environmentally Sensitive Habitat areas of Morro Creek and Willow Camp Creek.

A waterfront view incorporating the landscaping design is presented in Illustration 6.13-1.

Lighthouse Proposal

There has been community discussion regarding the possibility of renovating the southernmost stack into a lighthouse. Renovation of the stack into a community lighthouse with an observation deck could provide an opportunity to retain a visual icon for the Morro Bay “fishing village” idea to attract tourists to the Embarcadero/Harbor area.

One proposal suggests cutting the southernmost stack to 210 feet in height while another proposal would leave it the full height. A public observation deck could serve as a viewing platform to see both the town and the surrounding natural landscape. At the base of the lighthouse there could be a museum that tells the history of Morro Bay, and gives homage to the people who built the fishing industry and the industrial base of the community. The lighthouse could be a source of revenue for the town and add to the many reasons of why Morro Bay is a superb destination on the California coast.

Although this proposal is not necessarily a part of this application, it is included for consideration because of community desires to retain some portion of the existing structure.

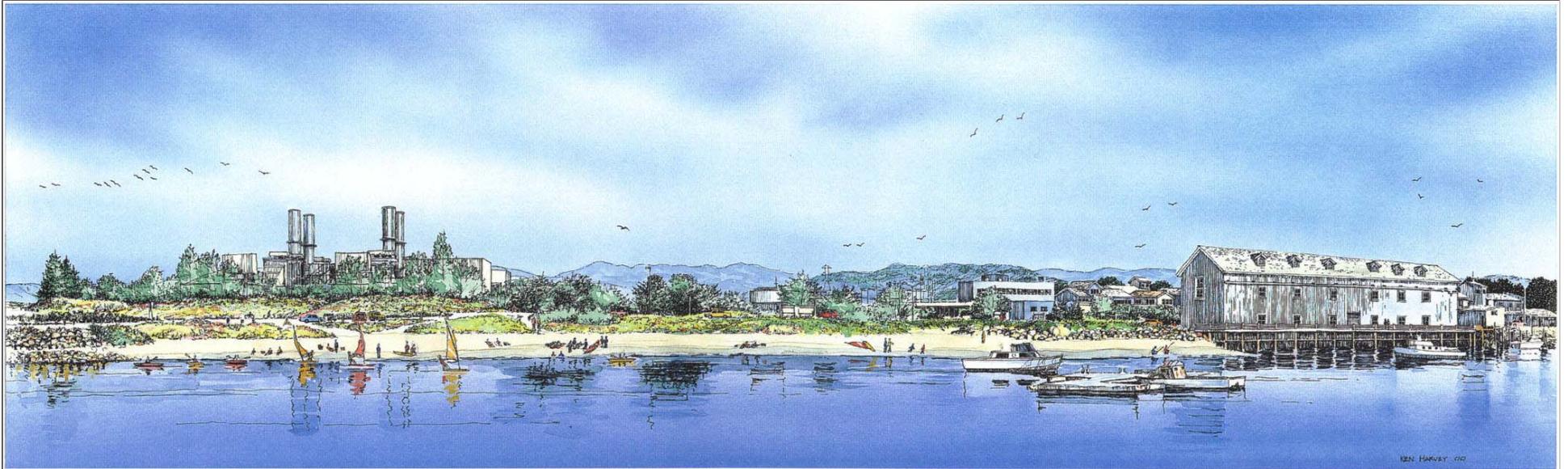
6.13.2.4 Night Lighting

Night lighting for the Project would illuminate the area sufficiently to ensure safe working conditions. Caps would be provided on luminars to minimize upward glare. In addition, the proposed landscaping surrounding the Project would screen some of the night lighting from off-site locations.

6.13.2.5 Visible Water Droplet Plume with the Project

The new combined cycle Project would have considerably smaller water vapor plumes than the existing facility and with much less frequency. Due to the lower moisture content of the

Illustration 6.13-1: Artist's Rendering of the Project Site with Landscaping



*Note: Remodeled water intake structure to the right.

exhaust gases from the new combined cycle Project, a water vapor plume would only be visible approximately 200 hours per year, mostly during night and early morning hours. The plume would be visible from the combined cycle power plant less than 70 daylight hours per year. This is much less frequent than from the existing boilers.

6.13.2.6 Viewshed Analysis

The areas where both the existing and proposed stacks can be seen are identified in the Viewshed Comparison Map, Figure 6.13-12. The viewshed for the Project's four new 145-foot stacks, is shown in green in the figure. The area in yellow is where the existing 450-foot stacks are visible, but the Project stacks would not be visible. Obviously, the taller existing stacks would also be visible within the green area, or the Project viewshed. Because the Project stacks are shorter, the new viewshed is smaller than that for the existing 450-foot stacks. The maximum area of potential benefit, resulting from the removal of the existing power plant, is the entire area of the existing viewshed, green plus yellow, since it is in both of these areas where the removal of the tall stacks is potentially apparent. Areas of potential benefit and potential visibility of the proposed new stacks are affected by two main considerations:

- Visibility – Where ANY portion of the described stacks is visible, however small; and
- Theoretical line of sight – Map does NOT consider effects of vegetation and other structures. Topography, height of the stacks, and line of sight are the only considerations.

Four general areas within the 5-mile study area show differences between the two viewsheds. These areas of difference appear in yellow, where only the existing 450-foot stacks are visible. Below are descriptions of the four areas and the effects of the Project.

The Highway 1 Corridor

Removal of the existing power plant and three tall stacks would be evident out to the edge of the 5-mile study area. The new stacks would not be visible from the Highway 1 corridor from beyond a distance of about 1.7 miles.

East Side of Los Osos and Morro Bay

Removal of the existing stacks would be evident in the areas ranging from about 1.4 miles out to the edge of the 5-mile study area. There would not be views of the new stacks from these areas.

Little Morro Creek Road

Large areas from between 1 and 2_ miles away from the Project site would benefit from the removal of the existing power plant and stacks. The new smaller stacks would not be visible from these areas.

Highway 41 Corridor

Small sections of the Highway 41 corridor from about 1_ to 2_ miles out, and in certain sections from 3 to 4 miles out, would benefit from the removal of the existing power plant and stacks. New stacks would not be visible.

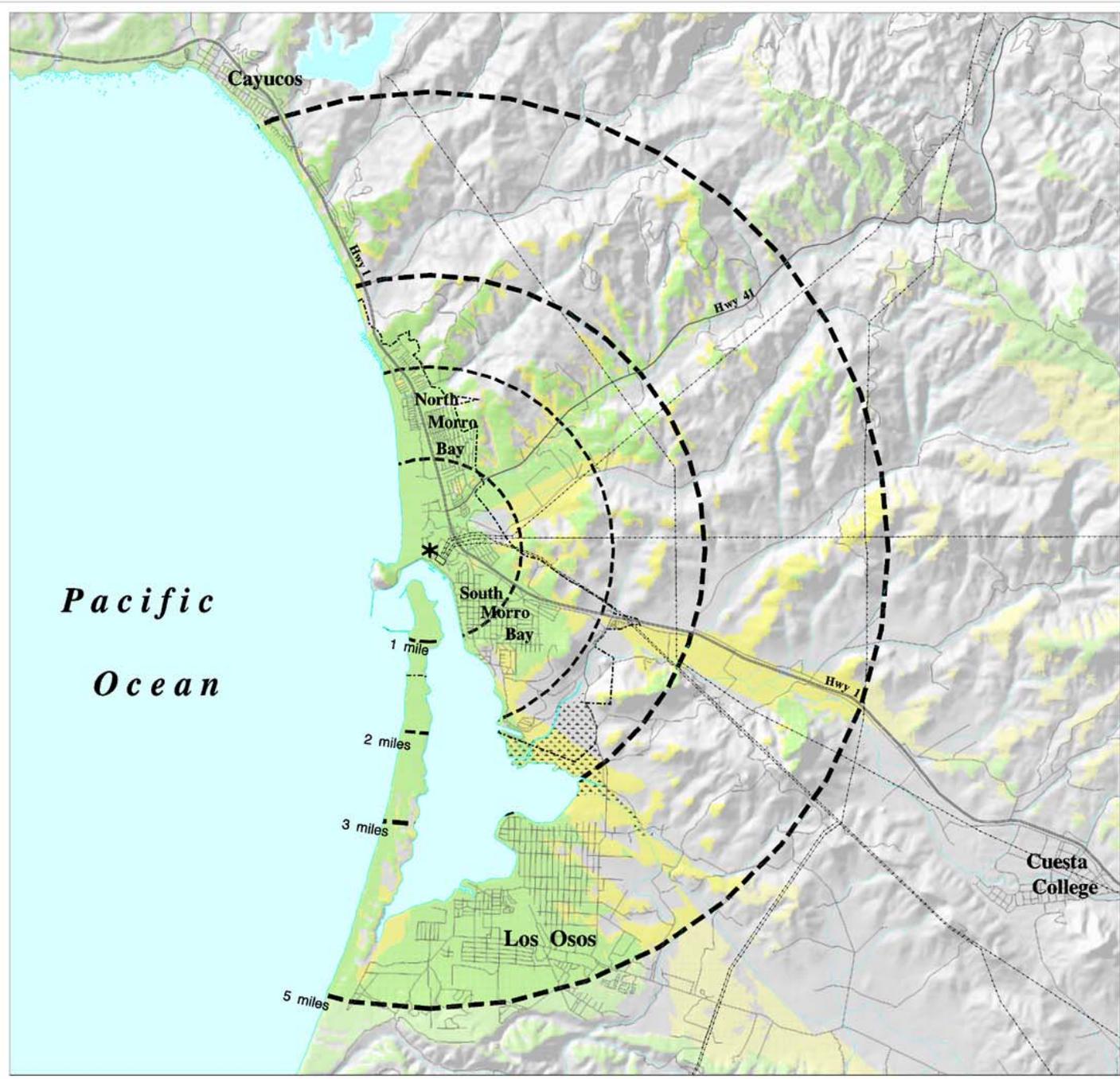
6.13.2.7 Selection of Key Observation Points (KOPs)

Early in the process (February 22, 1999), the City of Morro Bay Planning Department presented input concerning the selection of specific view locations. Many of the over 650 area residents who attended the Duke Energy Open House (held at the Morro Bay Power Plant on March 25, 1999) also offered input. Attendees of the Open House wrote their comments on a survey questionnaire and/or spoke in person with the local visual resource representatives, about viewpoint locations they felt were important to consider.

Efforts to involve the community also resulted in three “Community Conversations” held in March 1999 with local residents; more than one dozen presentations to interested groups were conducted. Through these efforts, questions and concerns about viewsheds and viewpoint locations (among other topics) were collected from local citizens.

Because of the varied range of viewsheds in the Project area, 82 viewpoints were initially selected to represent the locations from which the Project would be seen. Additionally, specific viewpoints were selected that are typical of the viewshed of the Project. Finally, some viewpoints were selected because of their special project or landscape features, high number of viewers, or cultural importance.

The established state and local plans, goals, policies, designations, and guidelines regarding visual resources were also reviewed to identify guidance concerning aesthetics while compiling the initial list. These were referenced and documented. An understanding of the lands and viewpoints within the larger region was critical, as well as an understanding of the proposed physical modifications of the Project.



Duke Energy Morro Bay, L.L.C.

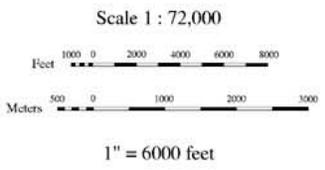
Maximum Potential Viewshed Comparison

VISIBILITY *

- + Maximum Area of Potential Benefit
— Resulting from Removal of Old (450 ft) Stack
- Proposed 145 ft Stacks
— Maximum Area of Potential Visibility
— Existing 450 ft Stacks may also be seen in this area because of their height.
- Existing 450 ft Stacks Only
— Maximum Area of Potential Visibility
- No Project Features Visible

* Theoretical line of sight mapping based on topography and stack heights — does not consider effects of vegetation and structures which may significantly limit actual views. Visibility defined as having view of any portion of the described stacks. (Minimum mapping unit approx 0.5 acre)

* New Project Location



GIS Mapping by **EDAW, Inc.** — San Francisco 101200

SOURCES: EDAW, Inc. (1999) / Cal Poly GIS (1999) / USGS —DEM

A comprehensive viewshed analysis was conducted, both in the field and in the office, of the Morro Bay/Cayucos/Los Osos areas. Each viewpoint location was individually analyzed. The 82 viewpoints represented a varied sampling of the most frequented, valued, and sensitive views of the Project. Ultimately, the objective was to identify a smaller, more manageable, set of demonstrative viewpoints that best represented the most sensitive and culturally important views with respect to the Project. The process of selecting these viewpoints, or Key Observation Points (KOPs) considered the number of viewers, landscape content, view orientation, duration of view, distance from power plant, and user type.

A meeting was held on May 6, 1999 to start the selection the KOPs. Attendees included Ms. Shauna Nauman (Interim Planning Director, City of Morro Bay); Mr. Greg Fuz, (Associate Planner of the City of Morro Bay Planning Department); Mr. Paul Curfman (EDAW Project Manager for this Visual Resource Analysis); and Ms. Tina Metzger (Principal, Tina Metzger Enterprises). On May 11, 1999, Ms. Nauman and Mr. Fuz met again, both in the field and the City of Morro Bay Planning offices, with Mr. Curfman and Ms. Metzger. At this time, Ms. Nauman and Mr. Fuz added their KOP selections to the list, with to those of Stephen Carnes, Vice Chairman, and Don Doubledee, Commissioner of the Morro Bay Planning Commission.

Nineteen selected viewpoints were identified as KOPs. The list was selected through a process of consensus at a third meeting in the field on May 20, 1999 that included everyone listed above, except Tina Metzger, as well as Mr. Gary Walker (Visual Resource Specialist, California Energy Commission); Mr. David Blau (EDAW, Principal-in-Charge of this Visual Resource Analysis); and Mr. Mark Seedall (Duke Energy, Director of Electric Modernization). The group agreed that 19 KOPs would be analyzed, the highest number ever designated for a California Energy Commission Application for Certification.

Since that meeting, Highway 1 has become an official State Scenic Highway; therefore, Duke Energy added a KOP to portray the highway view from the point closest to the Project. Also, adjustments in the exact photo locations were made on two KOPs (#12 and 15) to attain a clearer view of the Project. These adjustments were made with the agreement of representatives from both the California Energy Commission and the City of Morro Bay.

Each KOP was selected to be the clearest representation of views in the surrounding area. See Figure 6.13-13 for the complete list of selected Key Observation Points. See Figure 6.13-15, which displays the KOP locations on an aerial photograph and Figure 6.13-16 for Morro Bay Power Plant

KOP locations on a U.S. Geological Survey (USGS) map, following the discussion regarding measurement of visual change. The 20 KOPs are characteristic examples of views toward the power plant from designated parks, monuments, scenic highways, corridors and vista points, business/commercial/tourist-oriented land use areas, recreational areas, residential areas, and natural wild areas. Some specific locations, such as KOPs 5, 6, 7 and 8, were selected to clearly portray the new facilities from where they could be seen most easily.

The KOPs listed below represent views of the Project from all City of Morro Bay General Planning Areas (GPAs). Within each GPA are the local neighborhoods of Morro Bay, also represented by the different KOPs (see Table 6.13-3).

Figure 6.13-13: List of Key Observation Points (KOPs)

KOP No	Direction of View	Point of View
1	View WNW	From Top of Black Mountain
2	View SSE	From Morro Strand State Beach Campground Entrance (Beachcomber Drive and Whidbey Street)
3	View S	From West Side of Highway 1 at San Jacinto Street Crossing
4	View S	From The Cloisters Public Park
5	Near View SE	From Morro Strand State Park (West of Atascadero Road Parking Area)
6	Near View SE	From Morro Dunes Trailer Park and Resort and Campground
7	Close-Up View ESE	From South of Morro Creek at Embarcadero Road
8	View NE	Across Inlet From Morro Rock on Coleman Drive
9	View NNE	From North T Pier
10	View NW	From 1278 Scott Street Driveway
11	Distant View SW	From Highway 41 (300 Yards West of Denny's Billboard)
12	View SW	From Highway 41 Center Turn Lane at Miners Hardware Entrance
13	View SSW	From Morro Del Mar Subdivision (Near the Corner of Nutmeg and Casitas Avenues)
14	View SSW	From Sunset Plateau (Vacant Lot at End of Sunset Court)
15	Direct View W	From Harbor Front Tract (Near Radcliff Street on Berwick Drive)
16	View WNW	From Morro Bay Boulevard, Exit From Northbound Highway 1
17	View NW	From Morro Heights Neighborhood (Piney Way at Olive Street)
18	View NNW	From the Public Dock at Tidelands Park
19	View NW	From Steps Above Giant Chessboard at Centennial Park
20	View WSW	From Scenic State Highway 1 at Main Street Onramp

Table 6.13-3: KOPs from Morro Bay General Plan Areas (GPAs) and Local Neighborhoods

Morro Bay Neighborhoods to the North of the MBPP		KOP #
1 North Morro Bay GPA		2,3
Atascadero Beach Tract		
2 Atascadero Beach GPA		4
The Cloisters Morro Bay High School		
3 Del Mar GPA		12,13,14
Ocean Heights Tract Morro Del Mar Subdivision 1 & 2		
Panorama Heights #1 Dirks Tract		
Sunset Plateau		
Morro Bay Neighborhoods to the South and East of the MBPP		KOP #
4 Morro Highlands GPA		15,11,20
Harbor Front Tract Morro Garden Farms Tract		
5 Morro Rock GPA		5,6,7,8,9,10
Tract 53, The Industrial Area (Power Plant)		
6 Bayfront GPA		18,19
Old Town Morro Bay (portion to west)		
7 Central Morro Bay GPA		16,17
Morro Rock Park Tract Morro Bay Vista Tract #1 & 2		
Morro Heights Old Town Morro Bay (portion to east) 20		
Morro Bay Vista Tract #3		
8 State Parks		1,2
9 Harbor and Navigable Waterways		9,18
10 Sand spit		8

6.13.2.8 KOP Analysis Criteria

Specific conditions and criteria used in this analysis are briefly explained below. The analysis of KOPs involved the documentation and evaluation of three sets of information, including:

- KOP Characteristics and Existing Conditions – The nature of each viewpoint and the viewers who are most closely associated with it; how the existing MBPP is seen from each KOP, using information documented from viewing conditions on site and from the Existing Condition photographs.
- KOP Simulations – The simulations show how the landscape in the view would change as a result of implementation of the Project. The Existing Conditions photograph is used as a backdrop on top of which a computer-generated simulation is placed. For a description of this process and the software used please see Attachment 6.13-2.
- Measurement of Visual Change – The measurements of change are taken directly from the photos and simulations produced for this analysis. A system was developed to measure the potential visual change in the landscape that is easily replicated and highly accurate. This is achieved through the use of ESRI's ArcView software. ArcView is a GIS program that can describe how data are located in space and provides a means to quantify the data. Photo simulations were prepared from scanned images of the existing conditions, thus creating identical images that can be overlaid in ArcView and traced. The measurement process involved importing the images into ArcView and tracing over areas of the images corresponding to two characteristics: (1) the area of the existing power plant to be removed, and (2) the area of the Project to be added. This is further divided into the portion in front of the skyline, the coastal zone, Morro Rock, and all other portions. The tracing process is tracked in square millimeters of the actual photograph and summarized in ArcView. This information is then transferred into a data sheet that reports the visual change in both in actual terms, in square millimeters, and in terms of percentages.

6.13.2.9 KOP Characteristics and Existing Conditions

Six conditions were documented with regard to each of the KOPs:

- Location – The physical location of the viewpoint. Each of the KOP locations was surveyed in the field and plotted on a 1:28,000 base map (reduced from 1:24,000 per CEC Communications) (see Figure 6.13-16).

- Description – A brief description of the viewing conditions from each KOP and the context of the viewpoint.
- Distance to New Stacks –The distance in feet or miles is provided based on GIS data calculations.
- Types of Viewers – The types of typical viewers from each KOP are categorized as follows:
 - Residential – 1990 Census, derived from GIS.
 - Recreational – Figures are based on state and local park visitation numbers.
 - Mobile – Figures taken from the City of Morro Bay Traffic Count Data (various dates) and Caltrans traffic counts (1997).
- Quantity of Viewers – The number of viewers from this KOP, divided into the three categories above.
- Duration of View – An approximation, in minutes or hours, of the time that viewers at a KOP maintain the specific view.

6.13.2.10 KOP Simulations

The simulations in this analysis use a computerized model to characterize the location, size, and shape of the Project. It allows for portrayal of the Project at medium and long distances. However, it does not include all the details an observer might see from a close range. To depict the Project from a close range, we have included photographs of the Hidalgo power plant, in Texas. The components, which are of similar size as those being proposed for Morro Bay, are the HRSG, shown in Photograph 6.13-25, and the Air Intake Structure, Photograph 6.13-26.

Photograph 6.13-25 and 26: Hidalgo Power Plant in Texas, May 2000



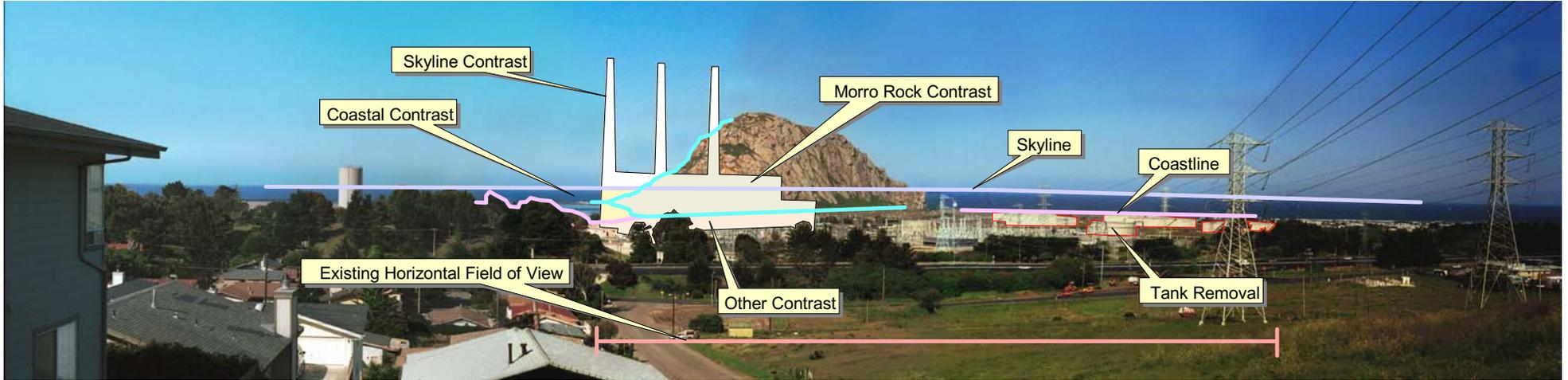
Some differences between the Hidalgo plant and the Project at Morro Bay do exist, however. First, the stacks in the photos are 180 feet tall, or 35 feet taller than the stacks proposed at Morro Bay, which are 145 feet tall. Second, the Hidalgo plant is a 500 MW facility, whereas the Project at Morro Bay calls for two 600 MW combined cycle turbines. Third, the takeoff towers (the A-Frame structure in the foreground of the right photo, and transmission poles shown for the Hidalgo plant are smaller than those that would be necessary for the Morro Bay Project. Transmission poles for the Project would be 90 feet tall to allow for crane access underneath and are not shown in the simulations because their location has not been fully determined. The last difference is, the Hidalgo plant has cooling towers which the Project does not need because it is sea-water cooled.

The Moss Landing Project, owned by Duke Energy and currently under construction in Monterey County, is also similar to the Project proposed for Morro Bay as it includes two 600 MW combined cycle turbines.

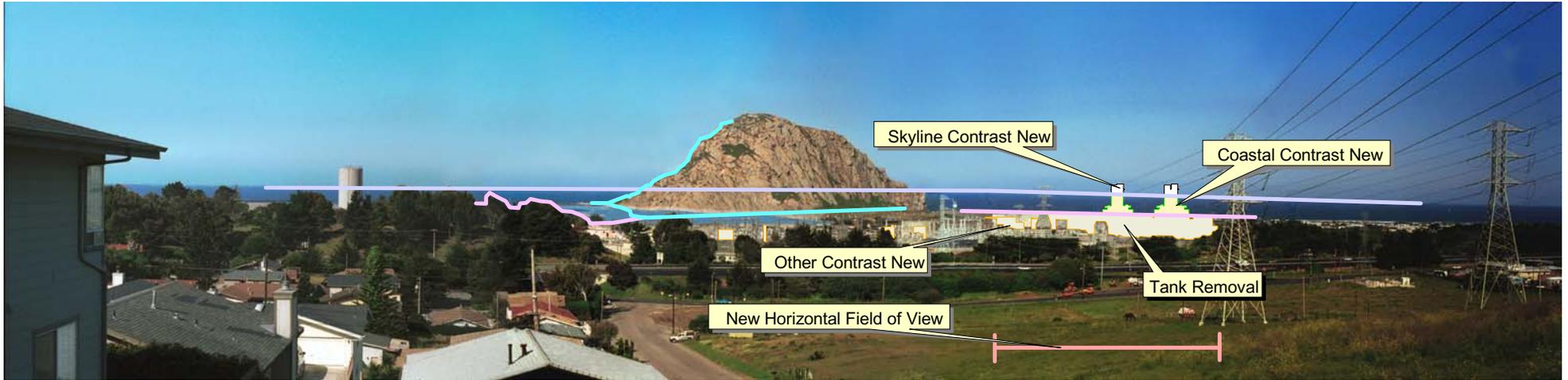
6.13.2.11 Measurement of Visual Change

Five factors were documented regarding the existing conditions of the MBPP, with results reported in the summary tables prepared for each KOP. The Measurement of Visual Change compares the measurements of these five variables under existing conditions with those of the Project. For an example of the area measurements, see the following Figure 6.13-14.

- Horizontal Field of View Occupied by Existing Plant – A physical measurement of the horizontal extent of the view occupied by the existing MBPP, measured in degrees. The change in the horizontal field of view as a result of the Project was noted as an increase or decrease.
- Area Occupied by Power Plant – A measure of the area of the existing MBPP in the view as measured in square millimeters on the photograph. Project features that are added and those that are removed are tracked individually by computer. The net difference is then calculated and provided in the “With Project” column in the results table for each KOP. The differences between the “Existing Conditions” and those “With Project” are also described. The above figures are described as a percentage. The existing power plant is represented as 100 percent. The new Project is shown as a percentage of the existing MBPP, with percentages greater than 100 percent representing an increase in visual magnitude in the view and percentages less than 100 percent representing a decrease in visual magnitude in the view. The total *Visual Change* is the percentage of difference in the view between the existing power plant and the Project.



KOP 15 Existing Condition Measurements



KOP 15 Proposed Condition Measurements

Example of Area Measurements

- Skyline Contrast – A measurement of the area of MBPP that is seen against the sky. These are often the most noticeable modifications, because of silhouette or color/tonal differences and the geometric nature of the forms. For the purpose of this analysis, the area of Project features seen with sky on three sides was measured on both the Existing Condition photograph and Future Conditions simulation and reported in terms of square millimeters in *Existing Conditions* and *With Project* columns. The net difference is noted in the *Visual Change* column with actual measurements and percentages.
- Coastal Features Contrast – A measurement of the area of MBPP that is seen against coastal features. These features include the sand spit, the beach area, the inlet, the ocean, and the bay. The area of Project features visible in front of coastal features was measured on both the Existing Condition photograph and Future Conditions simulation and reported in terms of square millimeters in *Existing Conditions* and *With Project* columns. The net difference is noted in the *Visual Change* column with measurements and percentages.
- Morro Rock Contrast – Morro Rock embodies much of the visual identity of the City of Morro Bay. A measurement of the area of the MBPP that is seen against Morro Rock is measured on both the Existing Condition photograph and Future Conditions simulation and reported in terms of square millimeters in the *Existing Conditions* and *With Project* columns. The net difference is noted in the *Visual Change* column by percentages.

To derive the measurements described above five elements of the power plant in the KOP images were measured using ArcView software. These included area to be removed, area of the new combined cycle units (above and below skyline), and area of the new combined cycle unit in the foreground of both Coastal Features and Morro Rock. All measurements were designed to be replicable.

6.13.2.12 KOP Analysis

This section presents each of the 20 KOPs. For reference, the KOPs are located on an air photo, Figure 6.13-15, and a USGS map at 1:28,000 (adjusted from 1:24,000 to fit format constraints - with CEC permission), Figure 6.13-16. Following the maps, the existing condition photographs and simulated proposed conditions are shown from each KOP. Proposed landscaping is not shown so that the Project can be fully seen. Also numerous assumptions would be required regarding growing conditions and potential growth rates. Landscaping is a part of the Project and a description is provided in Attachment 6.13-1.

Figure 6.13-15: Key Observation Points

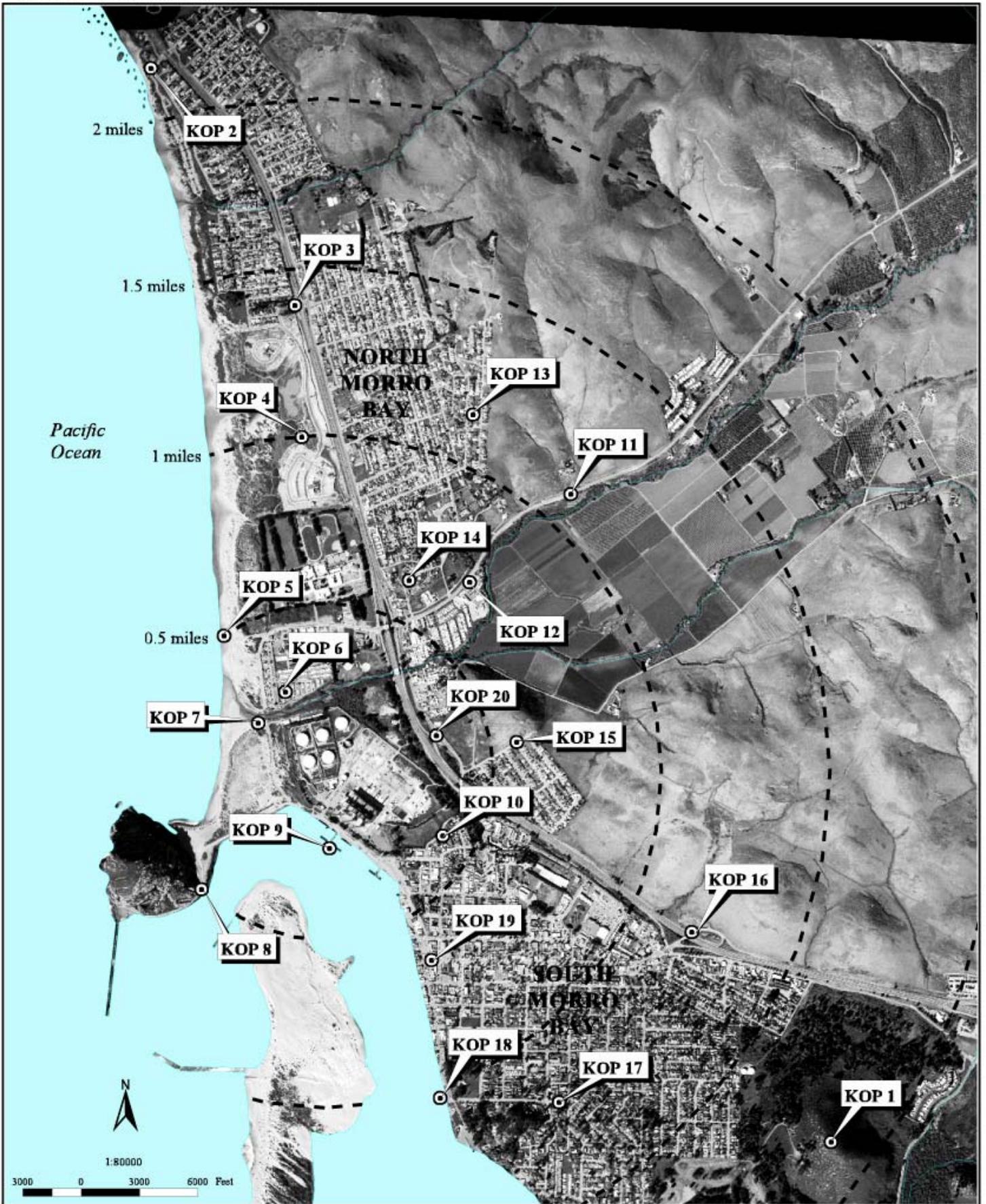
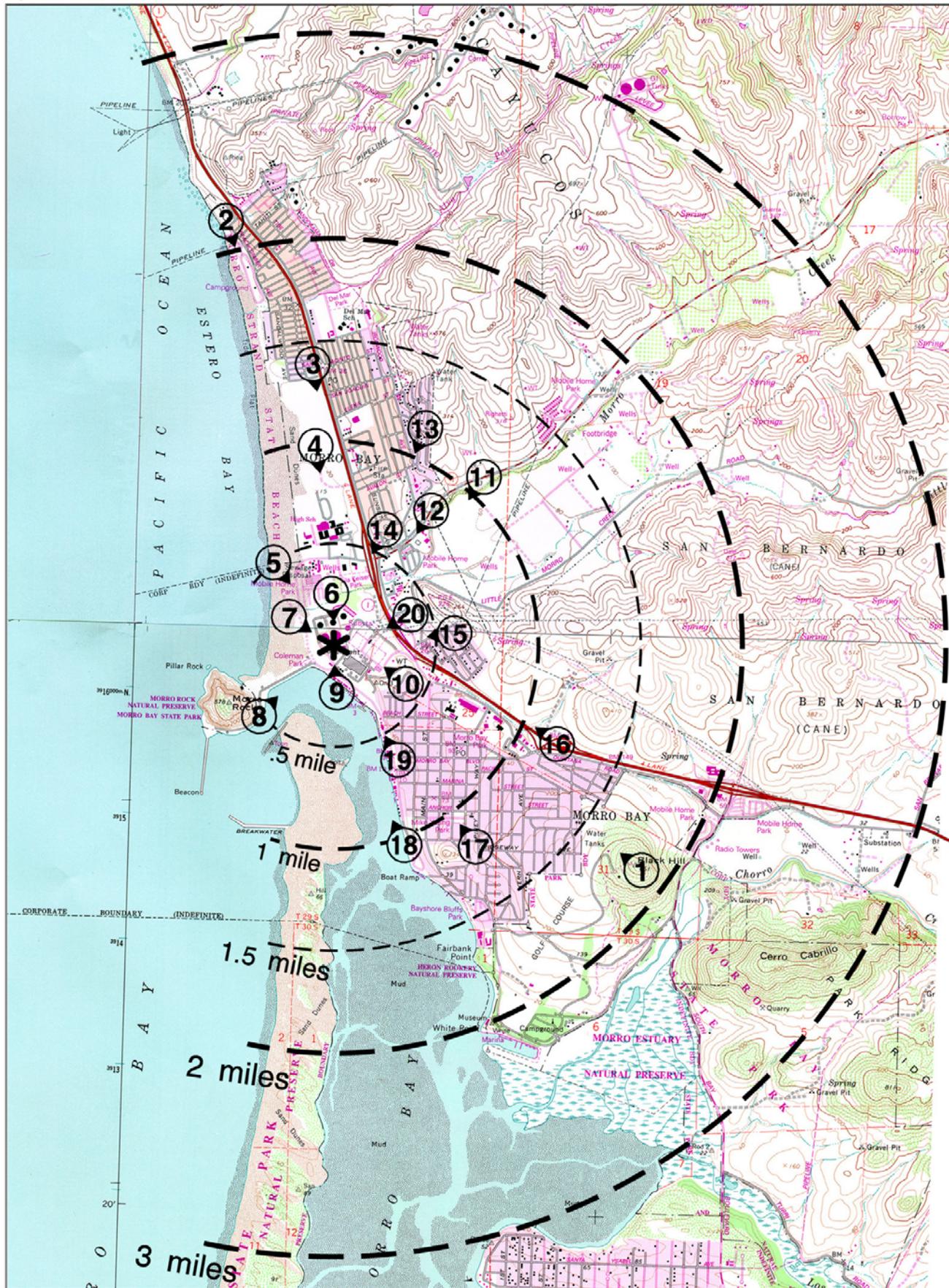


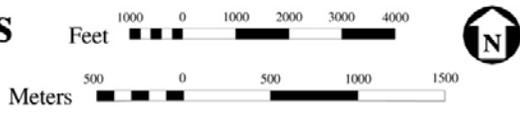
Figure 6.13-5: Key Observation Point Locations



Source: USGS / EDAAW, Inc.

Key Observation Point Locations

Duke Energy
Morro Bay, L.L.C.



ANALYSIS OF 20 KEY OBSERVATION POINTS

For each KOP, the analysis is presented on 3 separate pages, showing:

1. A map depicting the location and direction of the KOP in relation to the MBPP site
2. A table summarizing the information for each KOP, such as location, description, viewer types, and the visual contrast between the existing power plant and the Project
3. An 11 x 17 color graphic showing the difference between the existing power plant and the Project, including:
 - View of existing conditions
 - View of proposed conditions
 - Summary of visual changes
 - Overall visual effect (positive, negative, or neutral)

Measurements presented in the tables were taken directly from these photographs, and images of the simulated model, to determine the difference in area of the photograph occupied by the existing power plant and the Project from each of the 20 KOPs. All measurements are in square millimeters of the photograph and are provided in the tables. Percentages of change are in relationship to the existing condition.

Following the analysis results of the 20 KOPs, additional information is provided.

- Table 6.13-4, Summary of Visual Effects from KOPs.
- Table 6.13-5, Relative Viewing Frequency from KOPs
- Section 6.13-5 The Overall Visual Assessment

**Morro Bay
Key Observation Point 1:**

View Looking WNW From Top of Black Mountain



Key Observation Point 1

Location:	Overview looking WNW from top of Black Mountain Within Morro Bay State Park	
Description:	Overview of the City of Morro Bay and the surrounding region. The view is representative of views from the southeast and is referenced as a scenic view in the LCP. Public views are panoramic looking toward the back bay, Los Osos, the sand spit, the Pacific Ocean, and north toward Cayucos. Viewer activities include hiking and picnicking.	
Distance to new stacks:	9,700 feet or 1.8 miles	
Total Photo Field of View:	105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	Not applicable	Hours/visit
Recreational:	Not available – hiking access only (1)	
Mobile:	Not applicable	
Comments:	(1) Morro Bay State Park does not keep records of number of hikers to top of Black Mountain.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied By Power Plant (with Tanks)	7.33° (7.33°)	5.08°	-2.24°	Project results in a net decrease in the field of view by 31%.
Area Occupied by Power Plant (sq. mm. of photo)	40.03	35.46	-4.57	Area to remove (25.94) Area to be added (35.46)
Percent	100%	89%	-11%	Existing stacks are aligned along axis of photograph, reducing area of removal.
Skyline Contrast (sq. mm. of photo)				Stacks do not cross skyline since KOP is looking down on MBPP from Black Mountain.
Percent				
Coastal Contrast (sq. mm. of photo)	11.50	3.18	-8.32	Most addition is below line of coast. Existing and proposed stacks lie between beach, ocean and viewer.
Percent	100%	28%	-72%	
Morro Rock Contrast (sq. mm. of photo)				Existing power plant and the Project do not obscure Morro Rock from this perspective.
Percent				



KOP 1 Existing Conditions



KOP 1 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

- Line of sight is along axis of existing stacks, which appear as a single stack
- Removal of stacks and existing power plant improves views of the coastline
- Project is visible, low along the coastline, and does not obstruct views of the coastline
- Further enhancement results from removal of fuel tanks

KOP 1 - Visual Effect

Positive

**Morro Bay
Key Observation Point 2:**

**View SSE From Morro Strand State Beach Campground Entrance
(Beachcomber Drive & Whidbey Street)**



Key Observation Point 2

Location:	View SSE from Morro Strand State Beach Campground Entrance	
Description:	This view is seen by locals and tourists who visit the campground at Morro Strand State Beach, as well as by private residents along north Beachcomber Drive. This is a year-round coastal access point and is a scenic view referenced in the LCP. Panoramic views from this point include the ocean, beach, and dunes, with the rock and the existing power plant off in the distance at the south end of the beach.	
Distance to new stacks: Total Photo Field of View:	11,000 feet or 2.08 miles 105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	69 residents in Census Block plus 15 residents nearby on Beachcomber Drive (1) 3,127 free day use vehicles per peak month (Aug) (2) 35,858 annual visitors to Morro Strand State Beach (2) 98 overnight campers average per day (3) 909 average daily vehicles (4)	Hours/day
Recreational:		Hours/visit
Mobile:		Minutes/trip
Comments:	(1) 1990 U.S. Census and EDAW GIS. (2) Calif. State Dept. of Parks and Recreation (DPR), FY 1997-98. (3) Based on 35,858 annual overnight visitors, DPR, FY 1997-98. (4) City of Morro Bay, Engineering Department, ADT 1993.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	1.85°	2.31°	+0.46°	
Area Occupied by Power Plant (sq. mm. of photo)	15.33	2.33	-13.00	Area to remove (15.33) Area to be added (2.33)
Percent	100%	15%	-85%	
Skyline Contrast (sq. mm. of photo)	15.33	2.33	-13.00	All visible portions of the existing power plant and Project are above the skyline.
Percent	100%	15%	-85%	
Coastal Contrast (sq. mm. of photo)				The Project does not obstruct views of the coastal zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)				No portion of the Project obstructs views of Morro Rock.
Percent				



KOP 2 Existing Conditions



KOP2 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

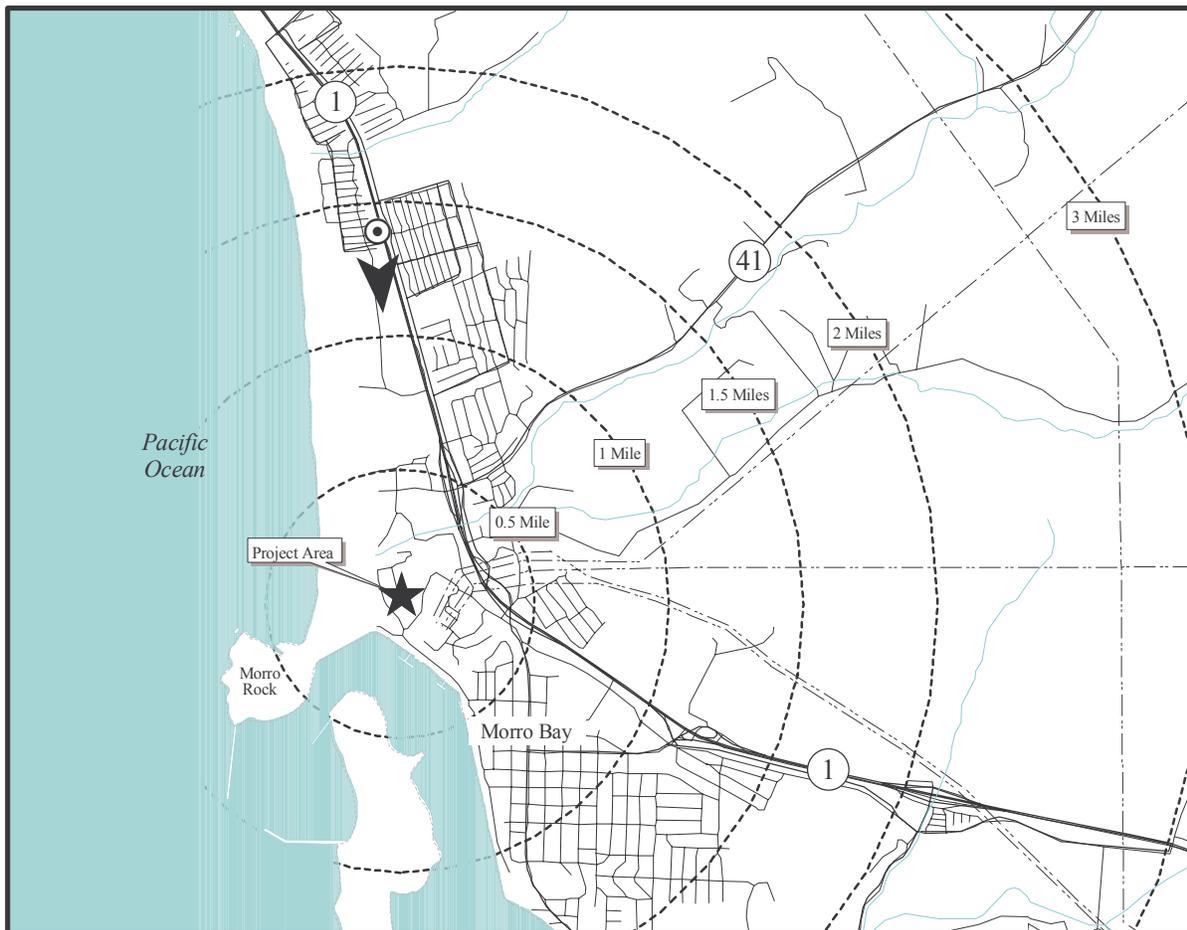
- Removal of tall stacks will reduce skyline silhouette
- Project is much less visible against the skyline

KOP 2 - Visual Effect

Positive

**Morro Bay
Key Observation Point 3:**

View S From West Side Highway 1 at San Jacinto Street Crossing



Key Observation Point 3

Location:	View S from west side Highway 1 at San Jacinto Street crossing	
Description:	This view is from the northern gateway to Morro Bay on Highway 1 where locals and visitors experience this public view. The view is currently open, with long to middle-range views of Morro Rock and the existing power plant. Foreground and middle ground views are soon to be occupied by the Cloisters housing development, which would retain one view corridor to the ocean. Most viewers at this point are within cars and the duration of the view is from seconds to minutes, depending upon the traffic signal at San Jacinto. This is a scenic view referenced in the LCP. Visible from this location is Highway 1, the new Cloisters development to the west, and Morro Rock in the distance.	
Distance to new stacks:	6,950 feet or 1.32 miles	
Total Photo Field of View:	105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	Not applicable – highway view	Minutes/trip
Recreational:		
Mobile:		
Comments:	(1) Southbound traffic only, Caltrans, ADT 1997.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	3.83°	2.31°	-1.52°	
Area Occupied by Power Plant (sq. mm. Of photo)	40.00	12.89	-27.11	Area to remove (40.00) Area to be added (12.89)
Percent	100%	32%	-68%	
Skyline Contrast (sq. mm. of photo)	8.80	0.0	-8.80	Existing power plant partially extends above skyline of distant hills. New plant lies below skyline. 100% reduction in skyline contrast.
Percent	100%	0.0%	-100%	
Coastal Contrast (sq. mm. of photo)				No portion of Project obstructs views of the coastal zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)				Existing plant and Project do not obstruct views of Morro Rock.
Percent				



KOP 3 Existing Conditions



KOP3 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

- Removal of tall stacks improves skyline
- Project lies below the skyline and is partially screened by existing vegetation

KOP 3 - Visual Effects

Positive

**Morro Bay
Key Observation Point 4:**

View S From The Cloisters Tract Public Park



Key Observation Point 4

Location:	View S from The Cloisters Tract Public Park	
Description:	Morro Bay Planning staff suggested this KOP. This view is from the children’s park within the new Cloisters Tract Subdivision and is representative of that development. The dominant view is of Morro Rock in the distance, while the tall stacks of MBPP rise over existing vegetation which surrounds Morro Bay High School in the middle-ground. Homes in this residential neighborhood are in the process of being constructed, which would further obscure views of the rock and MBPP. Activities include rollerblading, jogging, sunbathing, walking, and playing on park equipment.	
Distance to new stacks: Total Photo Field of View:	4,900 feet or 0.93 mile 105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	5 residents in Cloisters development (1) Not available (2) – Local residents would visit park with increasing frequency as Cloisters development is completed. Not applicable	Hours/day
Recreational:		Min.or
Mobile:		hrs/visit
Comments:	(1) Data supplied by Steve Stevens, Property Salesperson at The Cloisters, 5/1/99. (2) City of Morro Bay Department of Parks and Recreation does not count visitors at this location.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	4.09°	5.74°	+1.65°	
Area Occupied by Power Plant (sq. mm. Of photo)	33.21	49.51	16.30	Area to remove (33.21) Area to be added (49.51)
Percent	100%	149%	49%	
Skyline Contrast (sq. mm. of photo)	22.73	21.29	-1.44	The bulk of the existing power plant is below the skyline and screened by vegetation. Stacks of existing power plant extend above skyline of the distant hills. Stacks of the Project would extend above the skyline, but to a lesser degree.
Percent	100%	94%	-6%	
Coastal Contrast (sq. mm. of photo)				No portion of Project obstructs coastal zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)				Project lies to left of Morro Rock.
Percent				



KOP 4 Existing Conditions



KOP 4 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

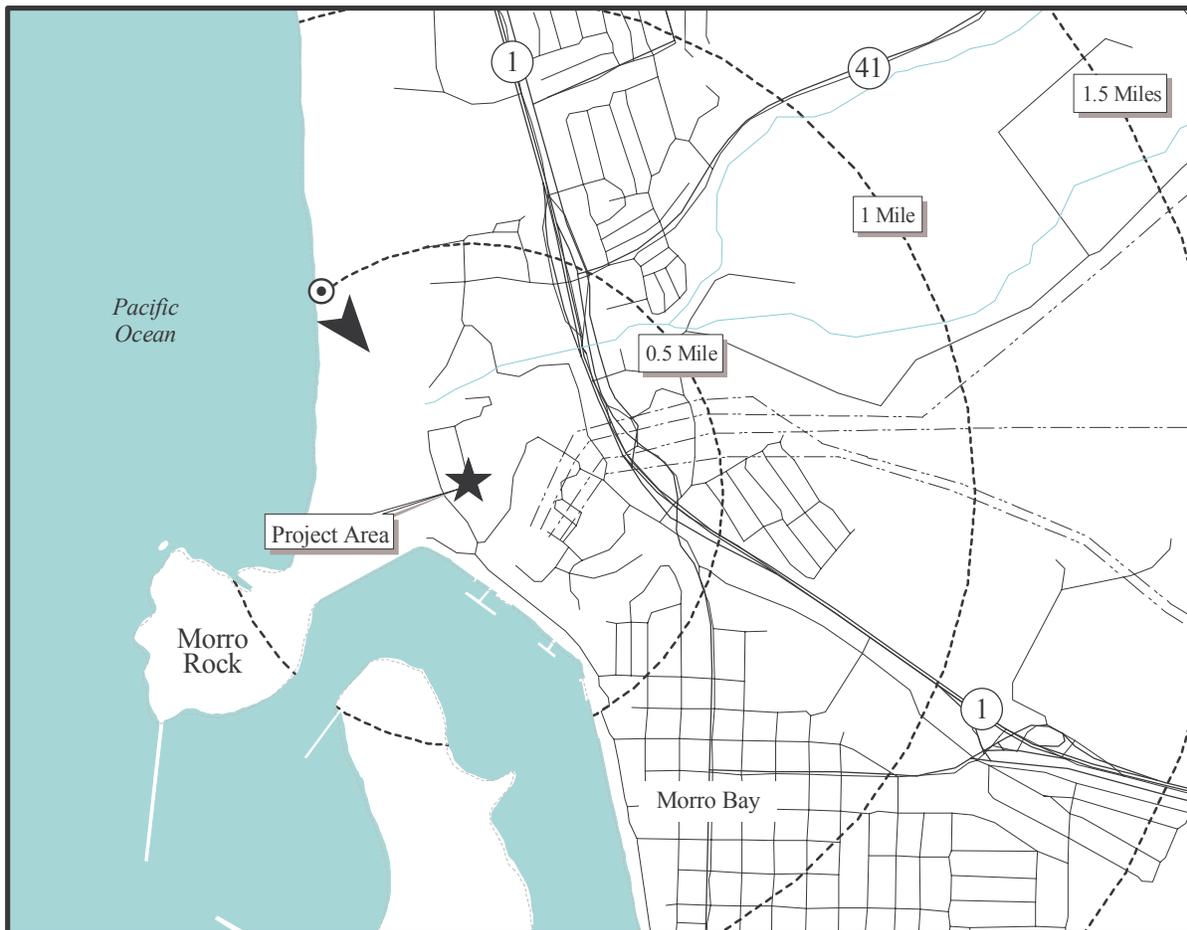
- Removal of stacks improves skyline
- View of the Project is now obscured by new homes constructed after this photograph was taken

KOP 4 - Visual Effects

Positive

**Morro Bay
Key Observation Point 5:**

**Near View SE From Morro Strand State Park
(West of Atascadero Road Parking Area)**



Key Observation Point 5

Location:	Near view SE from Morro Strand State Beach (west of Atascadero Road parking area)	
Description:	Public coastal access point and recreational area. Activities include hiking, jogging, surfing, sunbathing, swimming, and walking. Partially obstructed middle-range views of existing power plant due to close-range sand dunes. Scenic beach vista point is referenced in the LCP.	
Distance to new stacks:	2,300 feet or 0.44 mile	
Total Photo Field of View:	105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	Not applicable — there are no residences at this location	Hours/visit Minutes/trip
Recreational:		
Mobile:		
Comments:	(1) Calif. State Dept. of Parks and Recreation, FY 1997-98. (2) City of Morro Bay, Engineering Department, Atascadero Road at Embarcadero ADT 1982.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	8.65°	21.91°	+13.27°	
Area Occupied by Power Plant (sq. mm. Of photo)	172.26	421.18	249.22	Area to remove (172.26) Area to be added (421.48)
Percent	100%	245%	145%	
Skyline Contrast (sq. mm. of photo)	145.55	238.87	93.32	Project sited to left of existing power plant. Bulk of existing power plant and Project extends above the skyline
Percent	100%	164%	64%	
Coastal Contrast (sq. mm. of photo)				Project appears to extend above the coastal zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)				Project lies to left of Morro Rock.
Percent				



KOP 5 Existing Conditions



KOP 5 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

- Removal of existing power plant and stacks is very evident
- The Project is closer than existing power plant, details of Project become evident
- Berms partially screen lower portion of the Project. Proposed vegetation will provide further screening

KOP 5 - Visual Effect

Negative

Key Observation Point 6

Location:	Near view SE from Morro Dunes Trailer Park and Resort Campground	
Description:	The CEC Visual Resource Specialist suggested this KOP. Privately owned trailer park and resort campground close to the northern side of MBPP property, separated by Morro Creek. Resort campground is used mainly by out-of-town visitors who use the coastal access of the campground to the beach and Morro Rock. Views to the south toward MBPP are seen over various shrubs and trees, with the MBPP buildings and stacks fully in the viewshed. Activities include walking, sunbathing, jogging, picnicking, and barbecuing.	
Distance to new stacks:	1,000 feet or 0.19 mile	
Total Photo Field of View:	105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	11 Residents live within Census Block (1)	Hours/day
Recreational:	26,000 camp sites occupied per year (2)	Minutes/day
Mobile:	Not applicable	
Comments:	(1) 1990 U.S. Census and EDAW GIS. (2) Morro Dunes Resort Campground FY97-98, Doug Klaussen (owner), 1999. Number of individuals are not counted. (178 campsites with 40% occupancy rate).	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	26.40°	53.26°	+26.86°	
Area Occupied by Power Plant (sq. mm. of photo)	618.94	1395.36	776.42	Area to remove (618.94) Area to be added (1395.36)
Percent	100%	225%	125%	
Skyline Contrast (sq. mm. of photo)	604.21	1395.36	791.15	Existing power plant and Project extend wholly above skyline. Bulk of Project screened by existing vegetation, but stacks are visible above skyline.
Percent	100%	231%	131%	
Coastal Contrast (sq. mm. of photo)				No portion of Project obstructs coastal zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)				Not visible in photograph.
Percent				



KOP 6 Existing Conditions



KOP 6 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

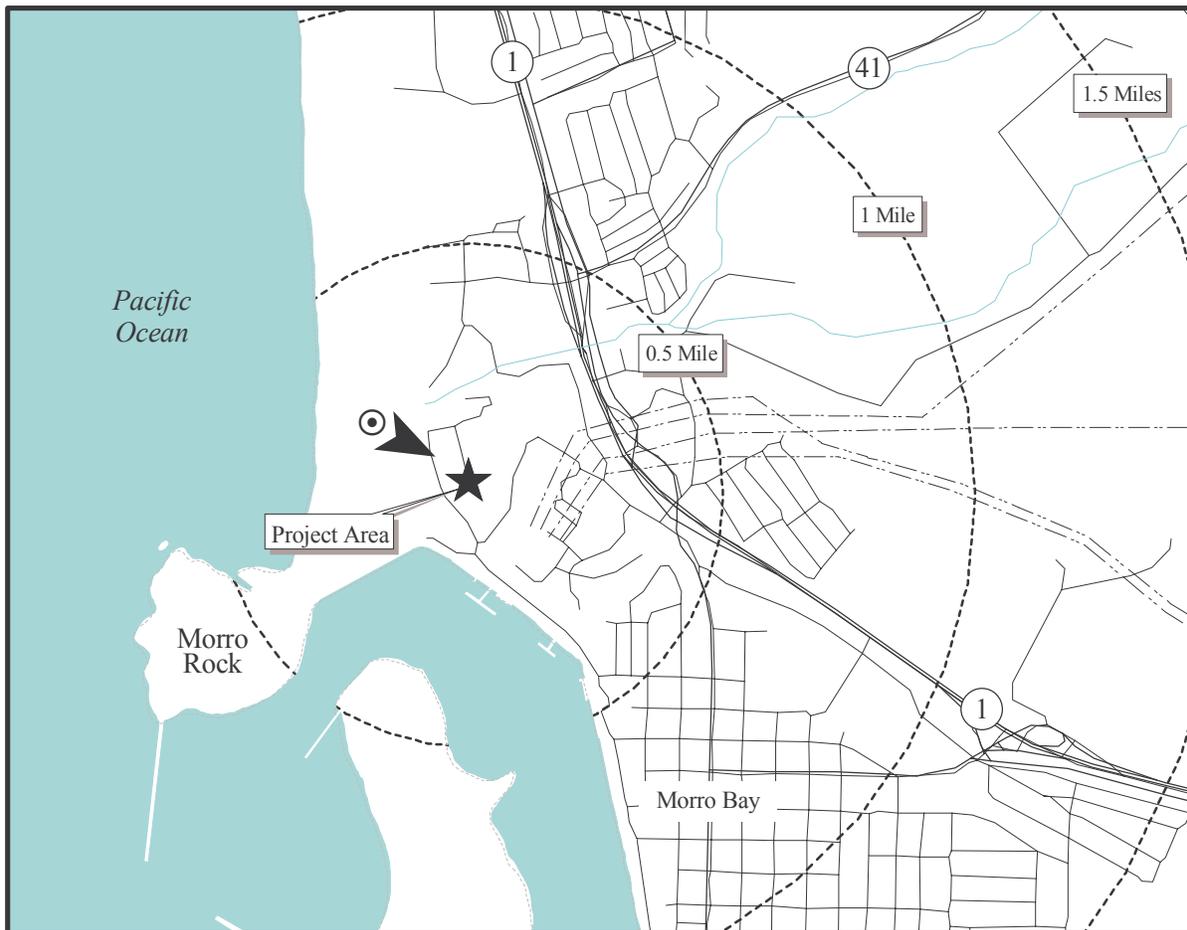
- Removal of existing stacks and building mass is very evident
- Project is much closer to viewer and extends above skyline
- Existing vegetation partially screens lower portion of Project. Proposed vegetation will provide further screening
- Details of Project are evident

KOP 6 - Visual Effect

Negative

Morro Bay
Key Observation Point 7:

Close-Up View ESE From South of Little Morro
Creek at Embarcadero Road



Key Observation Point 7

Location:	Close up view ESE from south of Morro Creek at Embarcadero Road	
Description:	This is a scenic vista point as referenced in the LCP and is a public coastal access point. Mainly local residents and fishermen use the unpaved public parking area. This is the future site of the Embarcadero Road connection. This site provides a close-range public view of the Project. The dominant view is of Morro Rock, the sand dunes, and the Pacific Ocean, with an unobstructed view of the MBPP tank farm area with the stacks in the background.	
Distance to new stacks:	1,000 feet or 0.19 mile	
Total Photo Field of View:	105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	Not applicable – there are no residences at this location	Minutes/day Minutes/trip
Recreational:	Not available (1)	
Mobile:	Not available – no traffic counts at this location (2)	
Comments:	(1) City of Morro Bay Department of Parks and Recreation does not count visitors to this location. (2) City of Morro Bay Engineering Department, ADT 1999.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	42.24°	32.47°	-9.77°	Project results in a net decrease in the field of view by 23%.
Area Occupied by Power Plant (sq. mm. of photo)	1056.32	1172.89	116.57	Area to remove (1056.32) Area to be added (1172.89)
Percent	100%	111%	11%	
Skyline Contrast (sq. mm. of photo)	342.74	847.76	505.02	Existing stacks line up on an axis and predominantly extend above the skyline. Bulk of Project is visible in the foreground view and extends above the skyline and distant ridgelines.
Percent	100%	247%	+147%	
Coastal Contrast (sq. mm. of photo)				Project lies behind coast zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)				Morro Rock not visible in photograph.
Percent				



KOP 7 Existing Conditions



KOP 7 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

- Existing power plant removal is an improvement, though minimized from this view due to stack alignment
- Project is closer to viewer and replaces view of old fuel tanks, details are evident
- Project would extend above the skyline and block some ridgeline views, though field of view is reduced
- Proposed vegetation will provide further screening, and a new bridge (lower left) will cross Morro Creek

KOP 7 - Visual Effect

Neutral

Morro Bay
Key Observation Point 8:

View NE Across Inlet From Morro Rock on Coleman Drive

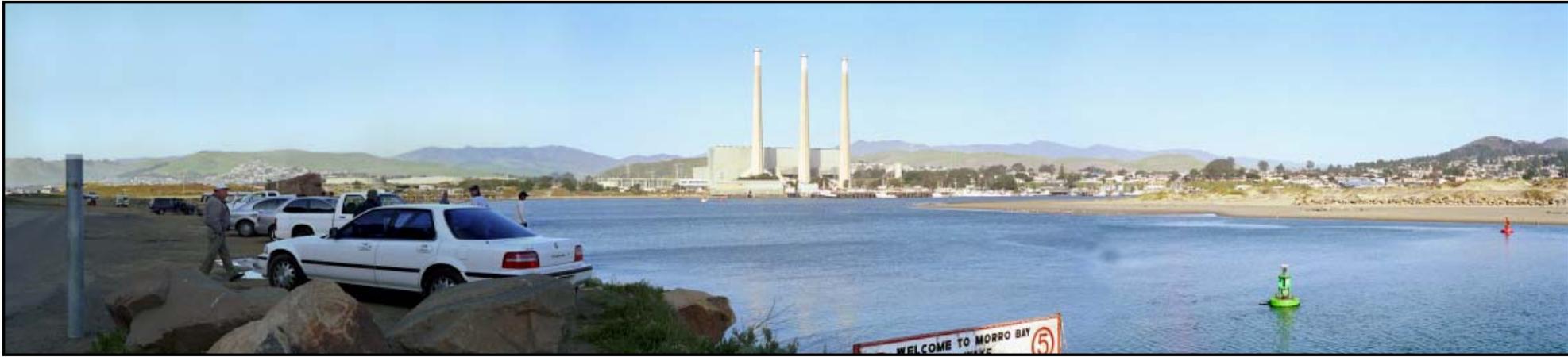


Key Observation Point 8

Location:	View NE across inlet from Morro Rock on Coleman Drive	
Description:	<p>Mainly local residents, visitors, and boaters coming into Morro Bay Harbor see this view. This is a full view of the MBPP property looking northeast from Coleman Drive at the base of Morro Rock. Tourists visit this scenic vista point that is located on the south side of Morro Rock, and the street (Coleman Drive) is listed as scenic in the LCP. Duration of public view is seconds to minutes while driving on Coleman Drive; others park to sit and watch the boaters and the birds at the harbor inlet. Views are of the sand spit, the jetty, the hills east of the Embarcadero area of Morro Bay, and the inlet toward the existing power plant. Distractions include the Morro Bay inlet close by on the right, boats going in and out of harbor, and oncoming traffic on Coleman Drive. Activities in this area are fishing from the rocks, watching the boats go in and out of the harbor, walking, and hiking. This view is panoramic.</p>	
Distance to new stacks:	2,600 feet or 0.49 mile	
Total Photo Field of View:	105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	Not applicable –no residences at this location	Min.or Hrs/day Minutes/trip Minutes/trip
Recreational:	Not available (1) – recreationists arriving by car shown below.	
Mobile:	4,984 cars per day ADT (2) Boats go in and out of harbor, number not counted (3)	
Comments:	<p>(1) City of Morro Bay Department of Parks and Recreation does not count individual visitors to this location. (2) City of Morro Bay Engineering Department, ADT 1999. (3) City of Morro Bay Harbor Department.</p>	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	35.38°	15.51°	-19.87°	Project results in a net decrease in the field of view by 56%.
Area Occupied by Power Plant (sq. mm. of photo)	681.97	223.72	-458.25	Area to remove (681.97) Area to be added (223.72)
Percent	100%	33%	-67%	
Skyline Contrast (sq. mm. of photo)	177.07	0.0	-177.07	All of Project lies below the skyline. Existing power plant stacks and portions of the building mass extend above the skyline.
Percent	100%	0%	-100%	
Coastal Contrast (sq. mm. of photo)				Project lies adjacent to coastal zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)				Morro Rock is not visible in the photograph.
Percent				



KOP 8 Existing Conditions



KOP 8 Future Conditions

Summary of Visual Changes:

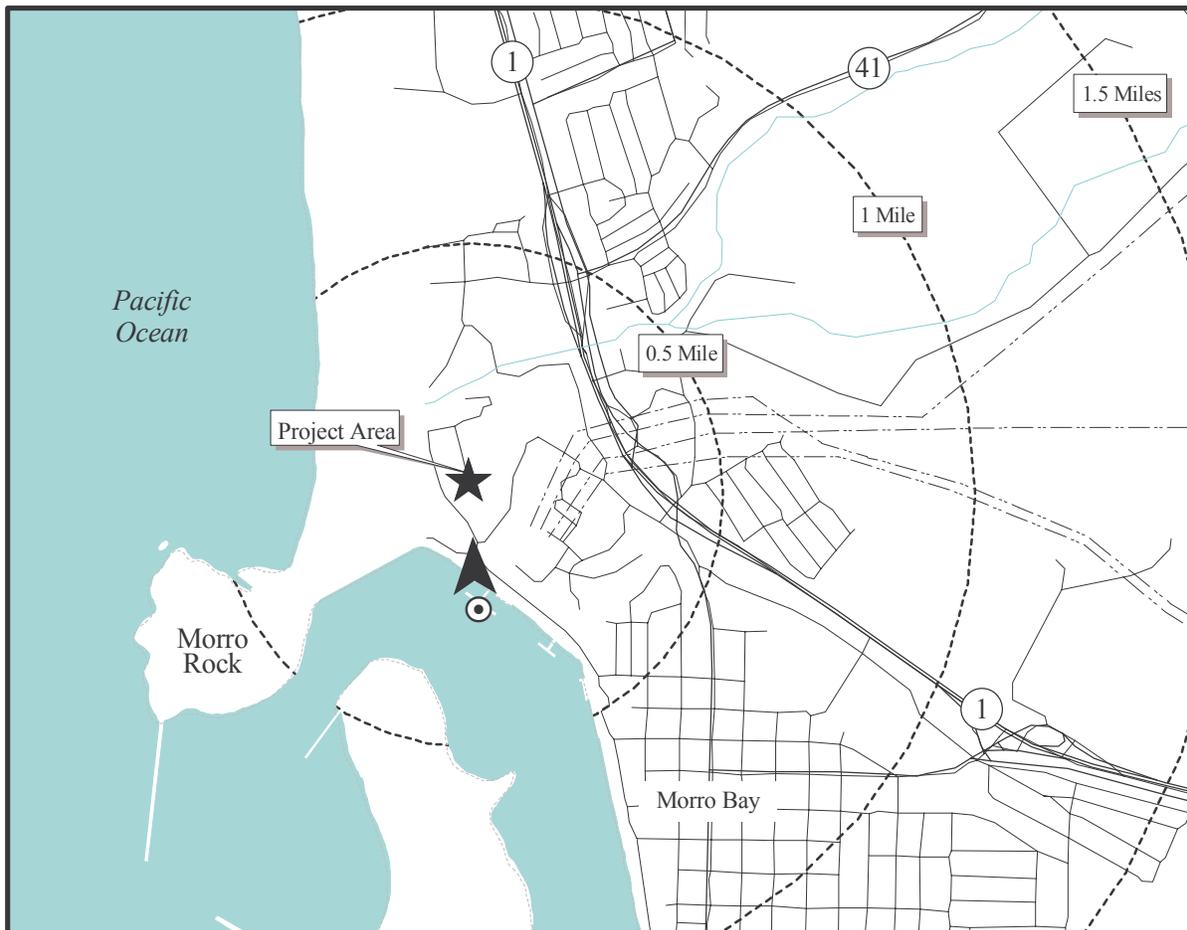
Note: Proper viewing distance is 8" from eye

- Removal of existing power plant and stacks eliminates skyline contrast and improves views
- New view is opened to mountain ridgeline in the distance; Project is completely below ridgeline
- Proposed vegetation will further screen Project

KOP 8 - Visual Effect

Positive

Morro Bay
Key Observation Point 9:
View NNE From North T Pier



Key Observation Point 9

Location:	View NNE from North T Pier	
Description:	CEC Visual Resource Specialist suggested this KOP. Public dock is used mainly by commercial fishermen. The City of Morro Bay owns this pier. North T Pier is also used as a fishing pier. View is 360 degrees. Dominant view is of the harbor inlet, the sand spit, Morro Rock, and the constant movement of boats and tides. View of the MBPP is close range. Activities include fishing, sightseeing, walking, picnicking, and docking.	
Distance to new stacks: Total Photo Field of View:	1,100 feet or 0.21 mile 99°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	Not applicable – no residents in this area Not available (1) – few visitors come out on the T Pier Average of 26 commercial fishing boats per month (2)	Min/visit Hrs./docking
Recreational:		
Mobile:		
Comments:	(1) Morro Bay Harbor Department does not count pedestrian visitors to the pier. (2) Morro Bay Harbor Department reports 314 commercial fishing boats docked per calendar year 1998.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	39.86°	5.61°	-34.25°	Gap in field of view between existing power plant and Project of 17.68°.
Area Occupied by Power Plant (sq. mm. of photo)	5152.81	79.78	-5073.03	Area to remove (5152.81) Area to be added (79.78)
Percent	100%	2%	-98%	
Skyline Contrast (sq. mm. of photo)	5152.81	79.78	-5073.03	Only area within photograph has been measured. Existing power plant and Project are so close to observation point that benefits of stack removal extend beyond the photo. The positive impact of stack removal is greatly understated. The Project is located behind existing vegetation and buildings.
Percent	100%	2%	-98%	
Coastal Contrast (sq. mm. of photo)				Project lies adjacent to coastal zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)				Morro Rock is not visible in the photograph.
Percent				



KOP 9 Existing Conditions



KOP 9 Future Conditions

Summary of Visual Changes:

- Removal of existing power plant and tall stacks improve views to sky
- Project is more distant and minimally visible behind existing buildings and vegetation

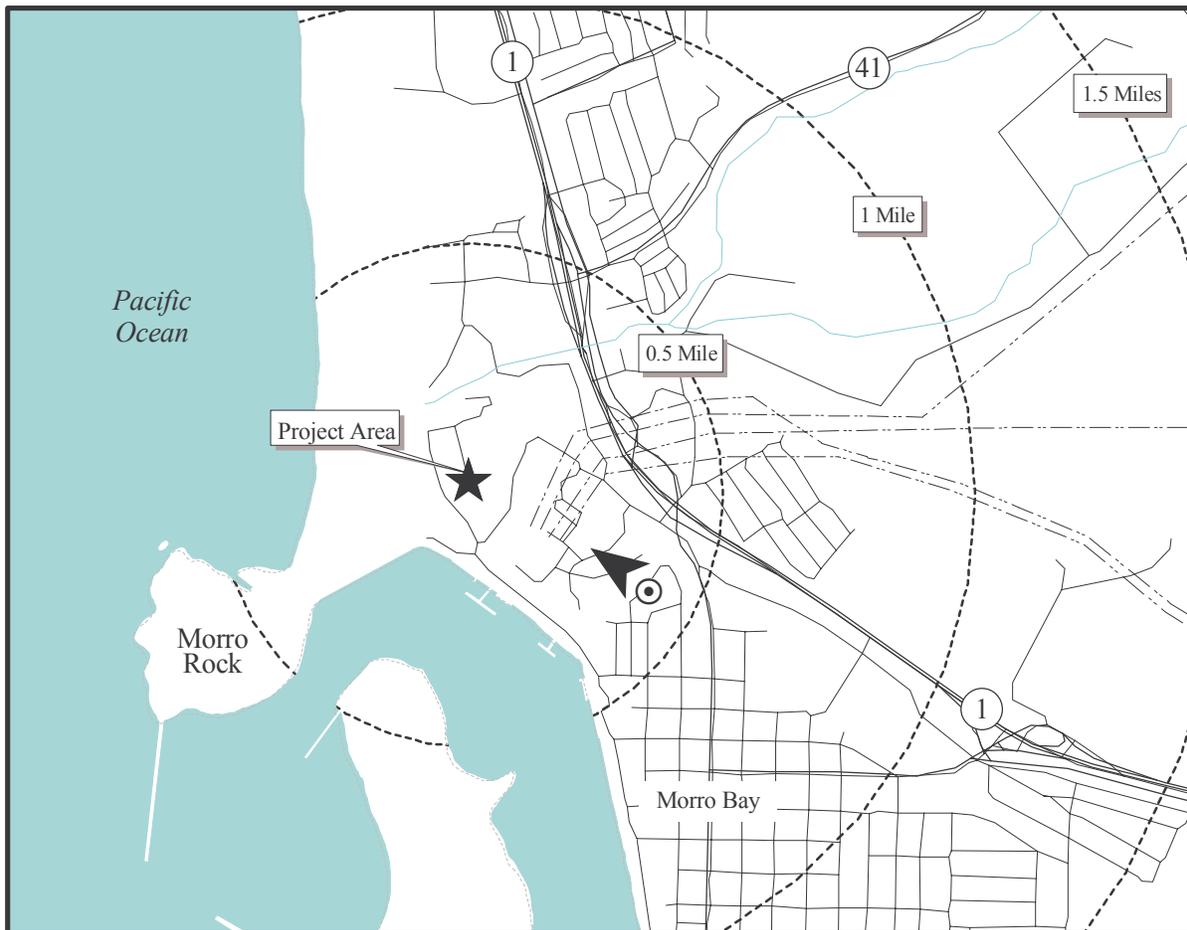
Note: Proper viewing distance is 8" from eye

KOP 9 - Visual Effect

Positive

Morro Bay
Key Observation Point 10:

View NW From 1278 Scott Street Driveway



Key Observation Point 10

Location:	View NW from 1278 Scott Street driveway	
Description:	CEC Visual Resource Specialist suggested this KOP. Short-range view of the southeast side of the MBPP building and stacks. This is a residential and somewhat private view, and is a representative view of the MBPP from this small neighborhood. Few people but the immediate residents along Scott Street see this view. Existing trees partially obstruct transformer yard and base of existing power plant. Morro Rock is immediately south of the MBPP in this viewshed. Views of MBPP are mostly from private homes, with public views available from on Scott Street, though somewhat obstructed by existing shrubs and trees. Scott Street is not a highly traveled street in Morro Bay.	
Distance to new stacks: Total Photo Field of View:	1,900 feet or 0.36 mile 95.7°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	49 residents within Census Block (1)	Hours/day Seconds/trip
Recreational:	Not applicable – not a recreational viewpoint.	
Mobile:	Not available (2)	
Comments:	(1) 1990 U.S. Census and EDAW GIS. (2) City of Morro Bay Engineering ADTs 1999.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	20.53°	16.83°	-3.70°	
Area Occupied by Power Plant (sq. mm. of photo)	1600.76	118.34	-1482.42	Area to remove (1600.76) Area to be added (118.34)
Percent	100%	7%	-93%	
Skyline Contrast (sq. mm. of photo)	1600.76	118.34	-1482.42	All visual change is above the skyline.
Percent	100%	7%	-93%	
Coastal Contrast (sq. mm. of photo)			(-158.92)	Proposed landscaping plan removes eucalyptus trees and opens view toward harbor through more distant trees.
Percent				
Morro Rock Contrast (sq. mm. of photo)			(-608.57)	Existing power plant appears to the right of Morro Rock. Proposed landscaping plan removes eucalyptus trees and opens view toward Morro Rock (not considered in calculation).
Percent				



KOP 10 Existing Conditions



KOP 10 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

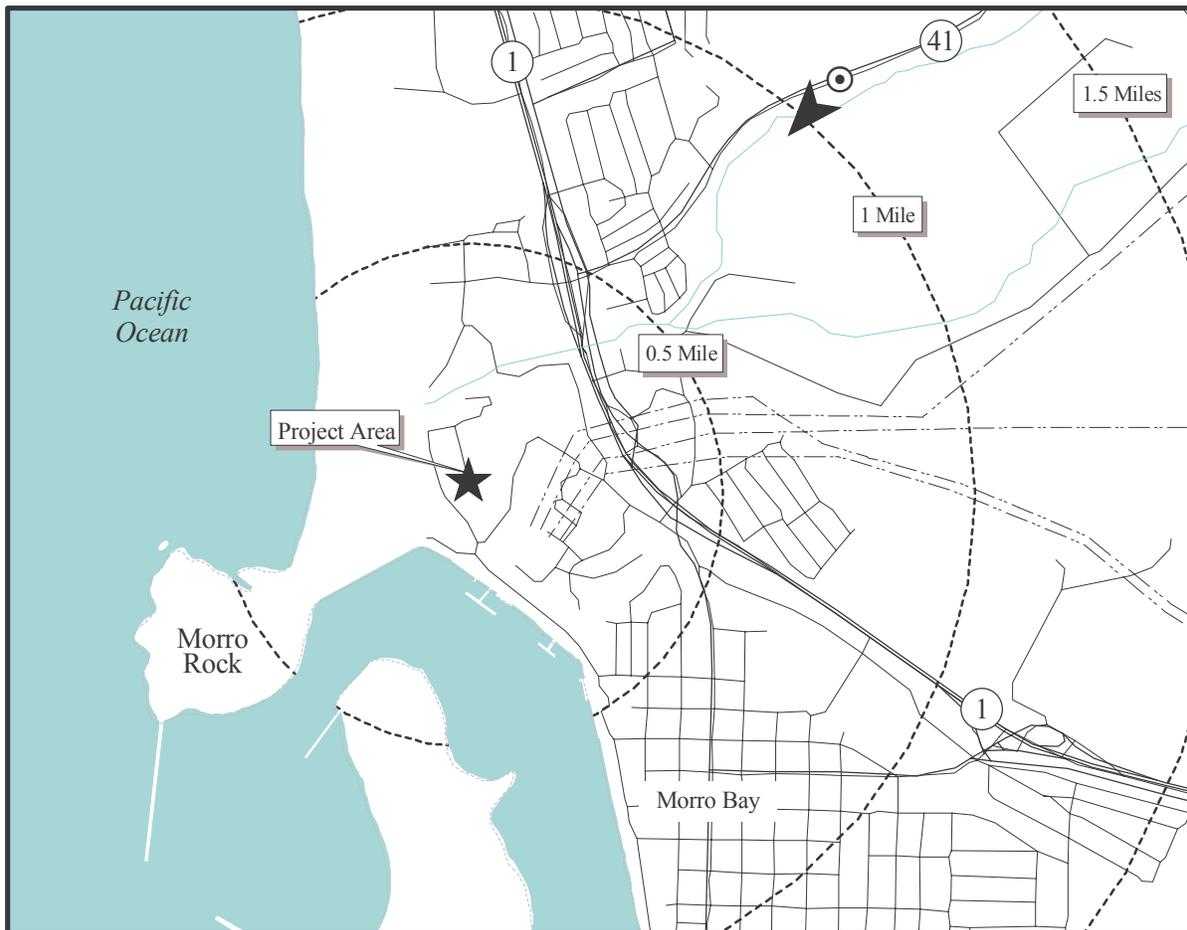
- Removal of existing power plant and tall stacks eliminates competition with Morro Rock and improves views to the sky
- Stacks of Project extend slightly above existing vegetation, overall skyline contrast is reduced
- Views of Morro Rock are improved by removing existing eucalyptus trees on the left

KOP 10 - Visual Effect

Positive

**Morro Bay
Key Observation Point 11:**

**Distant View SW From Highway 41
(300 Yards West of Denny's Billboard)**



Key Observation Point 11

Location:	Distant view SW from Highway 41 (300 yards west of Denny's billboard)	
Description:	Just over a mile from the plant, this KOP is a major gateway to Morro Bay from points east. Gateway from the east to the City of Morro Bay. Morro Bay planning staff suggested KOP. This non-stationary public view provides a partially obstructed view of the MBPP because of landscaping and topography. The view is framed looking west toward the MBPP, with Morro Rock the dominant object in the viewshed. The street view is referenced in the LCP. The view is from State Highway 41 toward MBPP and Morro Rock. Distractions from the view include an agricultural area with rolling hills and cows grazing.	
Distance to new stacks: Total Photo Field of View:	5,500 feet or 1.04 miles 89.1°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	Not applicable – Highway view	
Recreational:		
Mobile:		
Comments:	(1) Caltrans, westbound ADT 1997.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	5.28°	9.57	+4.29°	Existing power plant and Project separated by visual gap of 4.70°
Area Occupied by Power Plant (sq. mm. of photo)	78.24	39.47	-38.77	Area to remove (78.24) Area to be added (39.47)
Percent	100%	50%	-50%	
Skyline Contrast (sq. mm. of photo)	78.24	0	-78.24	Bulk of existing power plant lies above skyline. Project located below skyline and between Morro Rock and viewer.
Percent	100%	0%	-100%	
Coastal Contrast (sq. mm. of photo)				No portion of existing power plant or Project obstructs coastal zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)	0.00	14.11	+14.11	Portion of Project lies between viewer and Morro Rock.
Percent		Non-calculable		



KOP 11 Existing Conditions



KOP 11 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

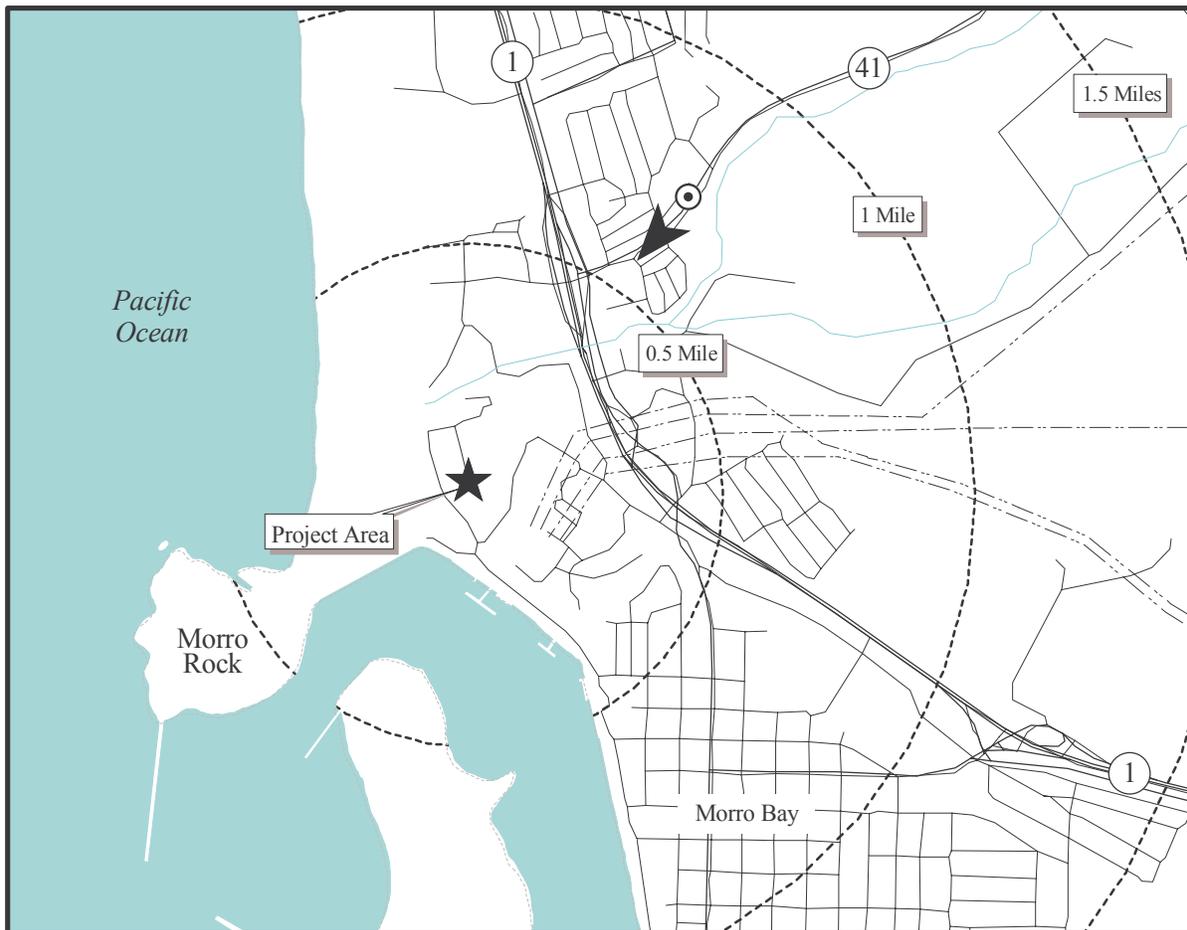
- Removal of existing power plant and tall stacks nearly eliminates skyline contrast
- Project is in front of Morro Rock
- Project is partially screened by existing vegetation

KOP 11 - Visual Effect

Positive

**Morro Bay
Key Observation Point 12:**

View SW From Highway 41 at Ironwood Avenue



Key Observation Point 12

Location:	View SW from Highway 41 at Miners Hardware Entrance	
Description:	Major gateway to Morro Bay from points east. Important entrance to the City of Morro Bay. This site provides a direct view of the existing power plant. This is a non-stationary public view. The view is framed, looking west toward existing power plant stacks. The street view is referenced in the LCP. The view is from Highway 41 toward the existing power plant. Distractions of the viewer are the road traffic and an agricultural area mixed in with commercial.	
Distance to new stacks: Total Photo Field of View:	3,900 feet or 0.74 mile 105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	Not applicable – highway view	
Recreational:		
Mobile:		
Comments:	(1) Caltrans, ADT 1997.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	6.80°	12.41°	+5.61°	
Area Occupied by Power Plant (sq. mm. of photo)	211.85	46.55	-165.30	Area to remove (211.85) Area to be added (46.55)
Percent	100%	22%	-78%	
Skyline Contrast (sq. mm. of photo)	211.85	29.21	-182.64	Project is screened by existing vegetation and a portion of the stacks extend above the skyline and Morro Rock.
Percent	100%	14%	-86%	
Coastal Contrast (sq. mm. of photo)				No portion of existing power plant or Project obstructs coastal zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)				Morro Rock is visible to right of photograph above vegetation.
Percent				



KOP 12 Existing Conditions



KOP 12 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

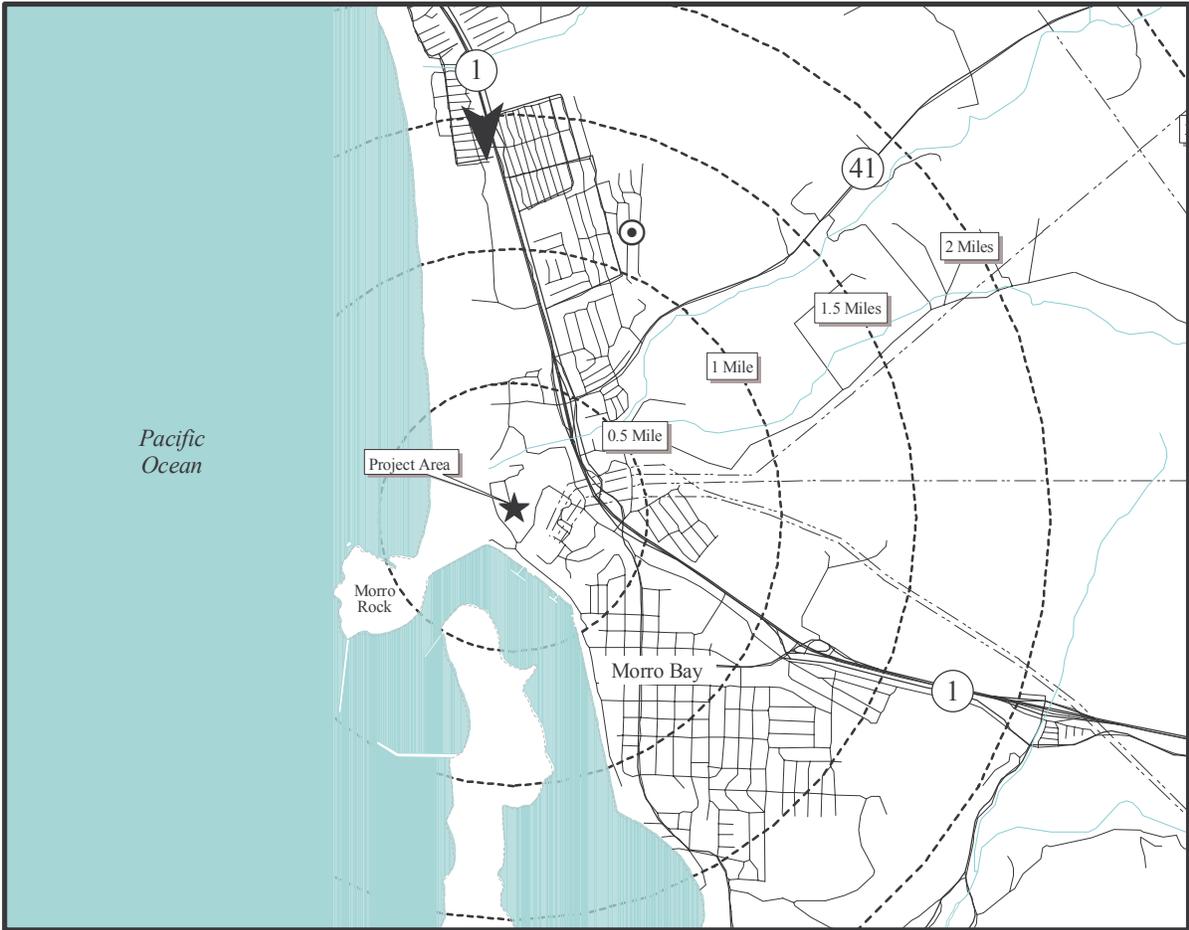
- Removal of existing power plant and tall stacks is very evident and reduces skyline contrast
- Project stacks are partially visible above the skyline and tree canopy, though lower than Morro Rock
- Bulk of the Project is screened by existing vegetation

KOP 12 - Visual Effect

Positive

**Morro Bay
Key Observation Point 13:**

**New SSW From Morro Del Mar Subdivision
(Near the Corner of Nutmeg and Casitas Avenues)**



Key Observation Point 13

Location:	View SSW from Morro Del Mar Subdivision (Near the corner of Nutmeg and Casitas Avenues)	
Description:	This is a residential view from the neighborhoods of upper Morro Del Mar Subdivision, Tracts 1 & 2. Many homes in this neighborhood are year-round residences; some are vacation homes. Panoramic views include the entire coastline, the entrance to the harbor, the sand spit, Morro Rock, Morro Strand State Beach, and surf. Scenic street and vista point referenced in the LCP.	
Distance to new stacks:	5,700 feet or 1.08 miles	
Total Photo Field of View:	105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	29 residents within Census Block (1)	Hours/Day
Recreational:	Not applicable	
Mobile:	Not available (2), but generally neighborhood residents	Seconds/trip
Comments:	(1) 1990 U.S. Census and EDAW GIS. (2) City of Morro Bay Engineering Department ADT 1999.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	15.38°	13.27°	-2.11°	Project results in a net decrease in the field of view by 13%
Area Occupied by Power Plant (sq. mm. of photo)	136.40	84.81	-51.59	Area to remove (136.40) Area to be added (84.81)
Percent	100%	62%	-38%	
Skyline Contrast (sq. mm. of photo)	17.32	0.0	-17.32	Stacks of existing power plant extend above skyline.
Percent	100%	0%	-100%	
Coastal Contrast (sq. mm. of photo)	55.13	40.34	-14.79	Portion of existing power plant and Project lies between viewer and the harbor, sand spit, and ocean.
Percent	100%	73%	-27%	
Morro Rock Contrast (sq. mm. of photo)				Plant appears to left of Morro Rock.
Percent				



KOP 13 Existing Conditions



KOP 13 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

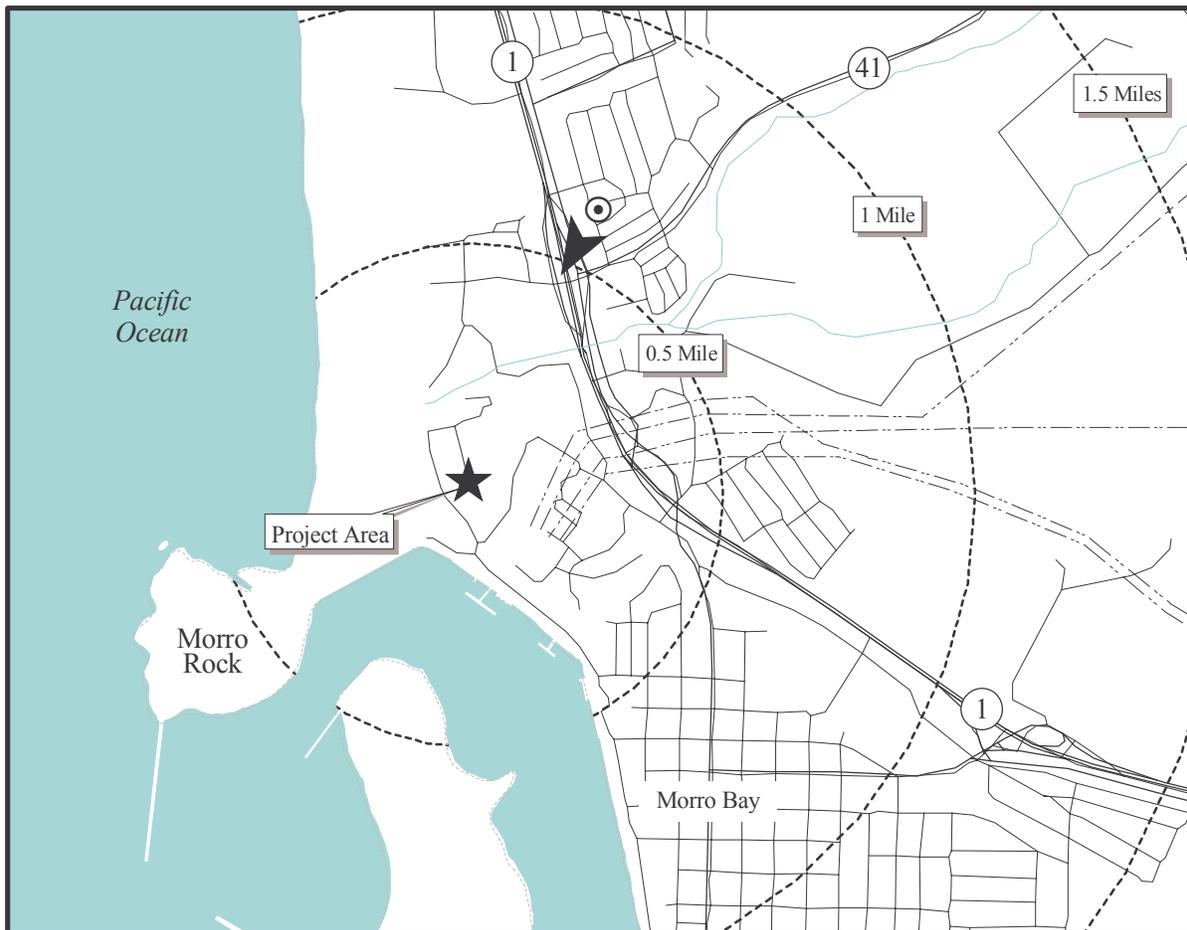
- Views of the coastline and ocean are enhanced
- Removal of existing power plant eliminates skyline contrast
- Project stacks remain below horizon line

KOP 13 - Visual Effect

Positive

Morro Bay
Key Observation Point 14:

**View SSW From Sunset Plateau
(Vacant Lot at End of Sunset Court)**



Key Observation Point 14

Location:	View SSW from Sunset Plateau (Vacant lot at end of Sunset Court)	
Description:	This private view from a vacant lot looks directly onto the Project. Other views include a broad expanse of the ocean, a view of the inlet, south jetty, the sand spit, and the coastline to the far north. This neighborhood overlooks Highway 1 in the middle ground.	
Distance to new stacks:	2,900 feet or 0.55 mile	
Total Photo Field of View:	105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	30 Residents in Census Block (1)	Hours/Day
Recreational:	Not applicable	
Mobile:	Not applicable	
Comments:	(1) 1990 U.S. Census and EDAW GIS.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	29.11°	15.71°	-13.40°	Project results in a net decrease in the field of view by 46%.
Area Occupied by Power Plant (sq. mm. of photo)	404.09	275.82	-133.28	Area to remove (409.09) Area to be added (275.82)
Percent	100%	67%	-33%	
Skyline Contrast (sq. mm. of photo)	109.21	29.85	-79.36	Bulk of existing and new stacks extend above skyline.
Percent	100%	27%	-73%	
Coastal Contrast (sq. mm. of photo)	74.14	83.69	9.55	Portion of existing power plant and Project lies between viewer and the harbor, sand spit and ocean.
Percent	100%	113%	13%	
Morro Rock Contrast (sq. mm. of photo)				Portion of one existing tank obscures view of Morro Rock. Tank removal would clear obstruction.
Percent				Tanks NOT considered in this evaluation



KOP 14 Existing Conditions



KOP 14 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

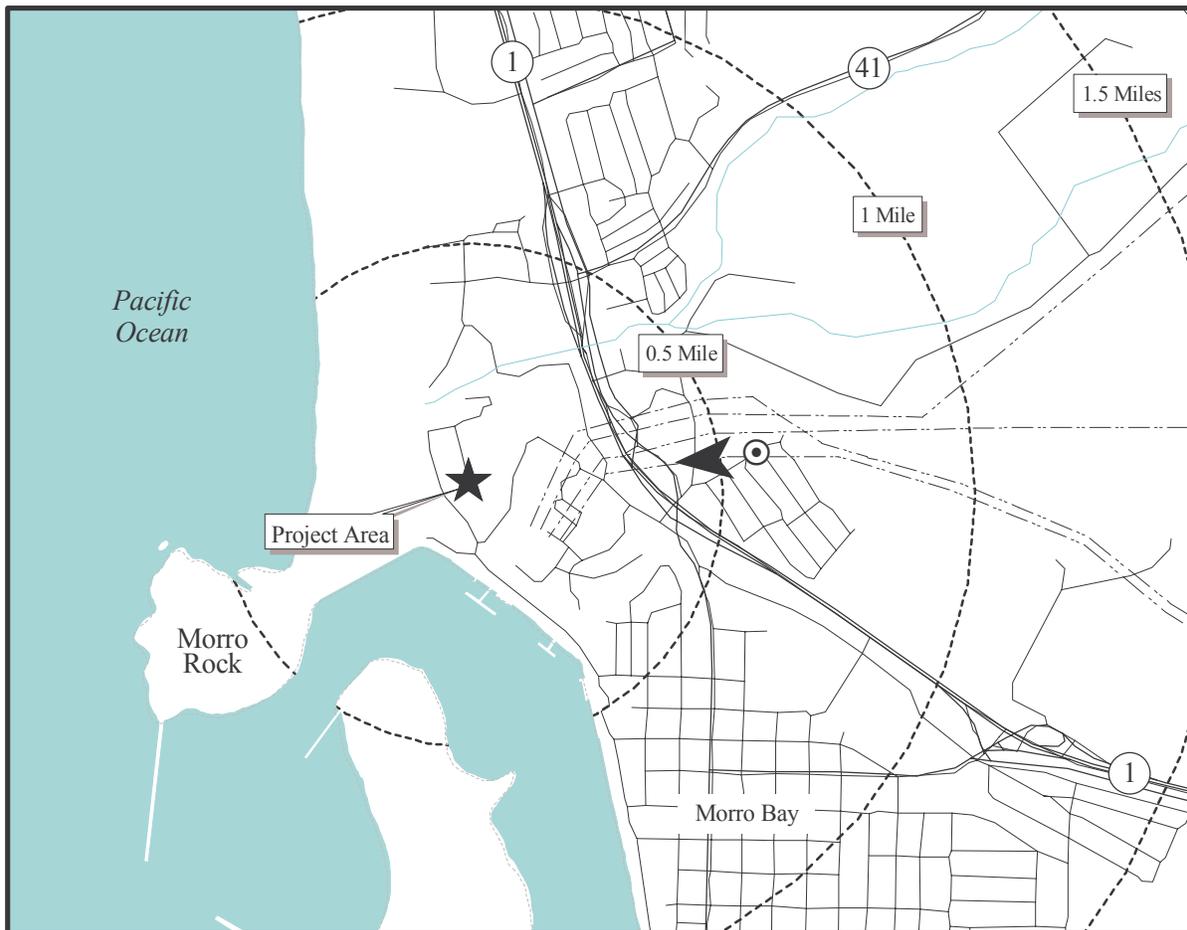
- Removal of existing power plant and tall stacks improves views of coastline and the sand spit
- Project is visible, though considerably smaller
- Skyline and coastal contrast are reduced
- Proposed vegetation will provide additional screening

KOP 14 - Visual Effect

Positive

**Morro Bay
Key Observation Point 15:**

**Direct View W From Harbor Front Tract
(Near Radcliff Street on Berwick Drive)**

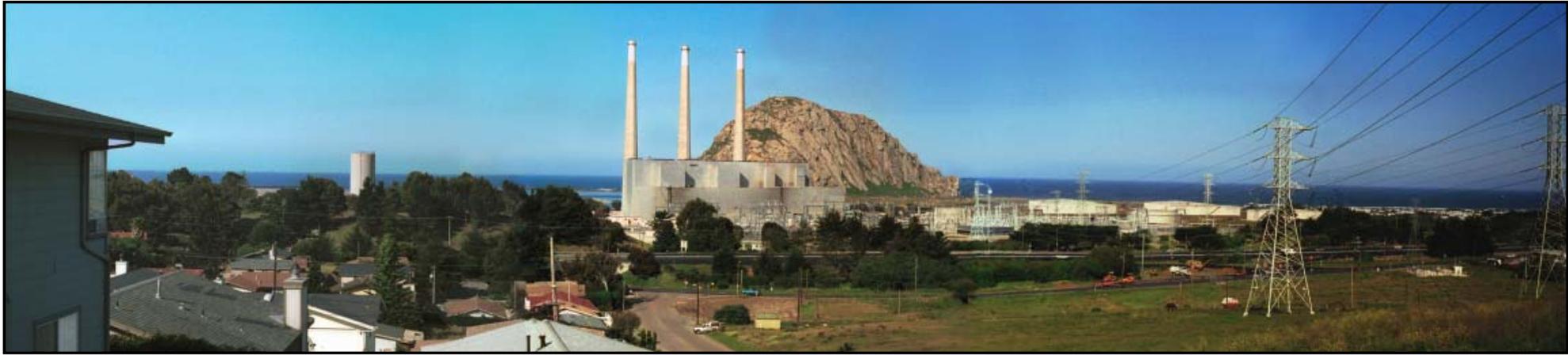


Key Observation Point 15

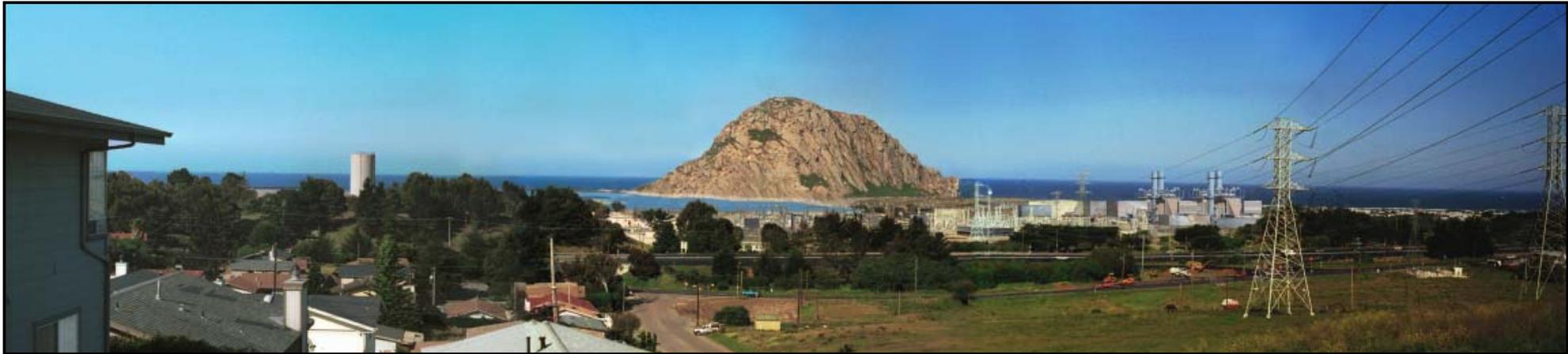
Location:	Direct view W from Harbor Front Tract (Looking down Radcliff Street from Berwick Drive)	
Description:	Typical view from the Harbor Front Tract residential area of the MBPP, Morro Rock, transmission line towers, and the ocean. Available views are from public streets and private homes. To the south is the harbor inlet and northern tip of the sand spit. Residential structures in the area sometimes frame views and other times obstruct potential panoramic views. Location near scenic vista point referenced in the LCP.	
Distance to new stacks:	2,900 feet or 0.55 mile	
Total Photo Field of View:	102.3°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	29 residents within Census Block (1)	Hours/Day
Recreational:	Not applicable	
Mobile:	Not applicable	
Comments:	(1) 1990 U.S. Census and EDAW GIS.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	42.50°	18.41°	-24.09°	Project results in a net decrease in the field of view by 56%.
Area Occupied by Power Plant (sq. mm. of photo)	957.10	305.56	-651.55	Area to remove (951.10) Area to be added (305.56)
Percent	100%	32%	-68%	
Skyline Contrast (sq. mm. of photo)	204.56	16.43	-188.12	Existing stacks extend above skyline. A small portion of the Project extends above the skyline
Percent	100%	8%	-92%	
Coastal Contrast (sq. mm. of photo)	50.04	102.33	52.29	Project lies between ocean and viewer. Improvement in coastal view to the left of Morro Rock is created with the removal of existing power plant.
Percent	100%	204%	104%	
Morro Rock Contrast (sq. mm. of photo)	384.74	0	-384.74	Existing power plant obscures views of Morro Rock. Removal of existing power plant improves view of Rock.
Percent	100%	0	-100%	



KOP 15 Existing Conditions



KOP 15 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

- Removal of existing power plant and tall stacks improves view of Morro Rock
- New stacks rise slightly above waterline and appear as two enlarged stacks
- Proposed vegetation will provide additional screening of Project

KOP 15 - Visual Effect

Positive

Morro Bay
Key Observation Point 16:

**View WNW From Morro Bay Boulevard,
Exit From Northbound Highway 1**



Key Observation Point 16

Location:	View WNW from Morro Bay Boulevard Exit from Northbound Highway 1	
Description:	Public exit off northbound Highway 1, the exit most tourists arriving from San Luis Obispo and southern points take to Morro Bay and the Embarcadero. The existing power plant stacks are an intermediate distance away with Highway 1 in the foreground. Topography and commercial buildings in the middle ground partially obstruct existing power plant buildings.	
Distance to new stacks:	6,100 feet or 1.16 miles	
Total Photo Field of View:	105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	Not applicable	Seconds/trip
Recreational:		
Mobile:		
	4,700 cars per day ADT on Morro Bay Boulevard at Northbound Highway 1 (1)	
Comments:	(1) Caltrans, ADT 1997.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	3.30°	0.53°	-2.77°	
Area Occupied by Power Plant (sq. mm. of photo)	53.04	1.03	-52.00	Area to remove (53.04) Area to be added (1.03)
Percent	100%	2%	-98%	
Skyline Contrast (sq. mm. of photo)	53.04	1.03	-52.00	All visual change is above the skyline.
Percent	100%	2%	-98%	
Coastal Contrast (sq. mm. of photo)				No portion of existing power plant or Project obstructs coastal zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)				Morro Rock appears to the left.
Percent				



KOP 16 Existing Conditions



KOP 16 Future Conditions

Summary of Visual Changes:

- Removal of existing stacks improves skyline views
- Project is barely visible behind existing vegetation to the right of existing power plant

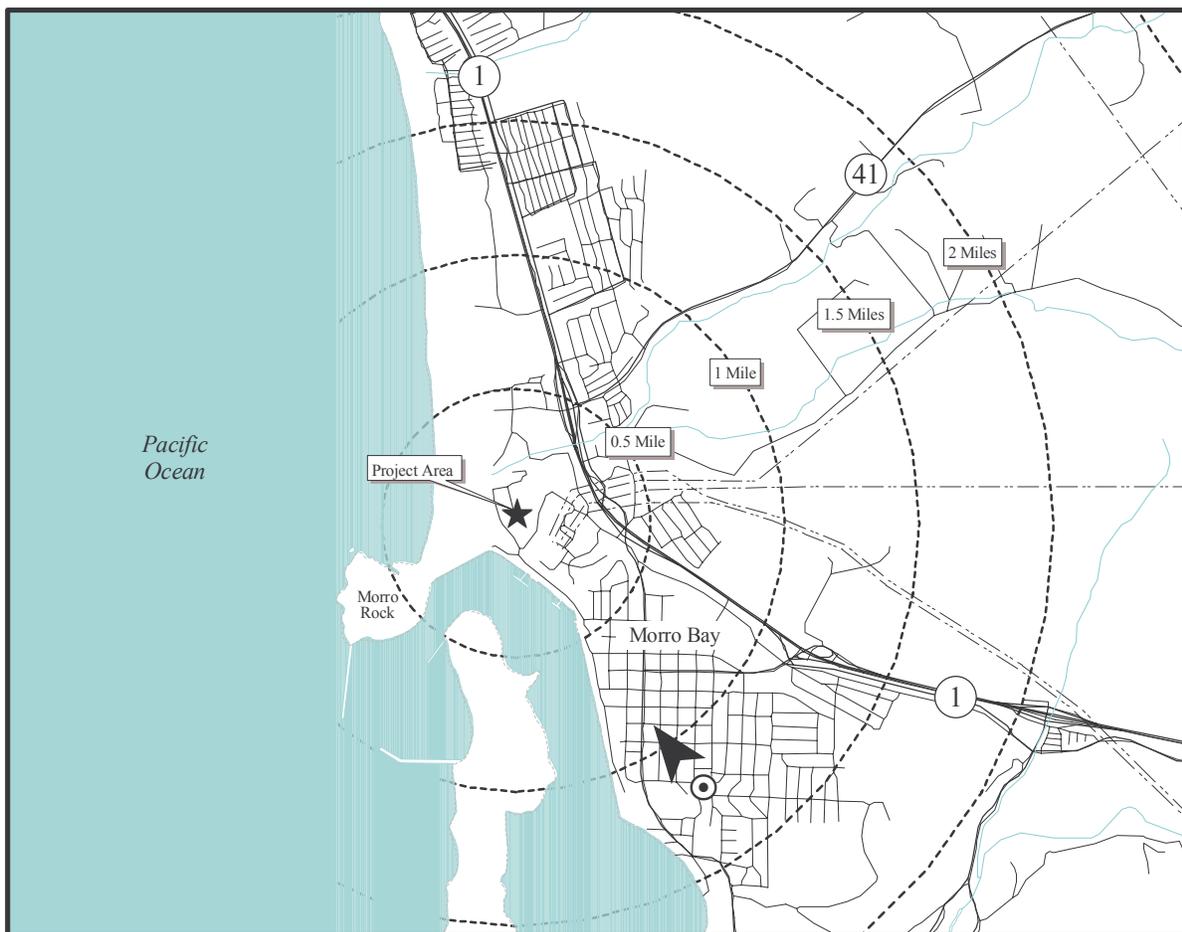
Note: Proper viewing distance is 8" from eye

KOP 16 - Visual Effect

Positive

**Morro Bay
Key Observation Point 17:**

**View NW From Morro Heights Neighborhood
(Piney Way and Olive Streets)**



Key Observation Point 17

Location:	View NW from Morro Heights neighborhood (Piney Way and Olive Street)	
Description:	The view from the Morro Heights neighborhood is referenced in the LCP as a scenic view, though vegetation and homes have obscured many distant views of the ocean and the existing power plant. The existing power plant is in the long-range view.	
Distance to new stacks:	6,200 feet or 1.17 miles	
Total Photo Field of View:	105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	30 residents in Census Block (1)	Hours/Day
Recreational:	Not applicable	
Mobile:	1,363 cars per day ADT (2)	Seconds/Trip
Comments:	(1) 1990 U.S. Census and EDAAW GIS. (2) City of Morro Bay Engineering Department, ADT 1991.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	4.49°	6.01°	+1.52°	Project is located behind existing power plant and not visible within the view.
Area Occupied by Power Plant (sq. mm. of photo)	95.06	46.45	-48.61	Area to remove (95.06) Area to be added (46.45)
Percent	100%	49%	-51%	
Skyline Contrast (sq. mm. of photo)	28.88	0.00	-28.88	Existing stacks extend above skyline.
Percent	100%	0%	-100%	
Coastal Contrast (sq. mm. of photo)				No portion of Project obstructs coastal zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)				Morro Rock not visible in the photograph.
Percent				



KOP 17 Existing Conditions



KOP 17 Future Conditions

Summary of Visual Changes:

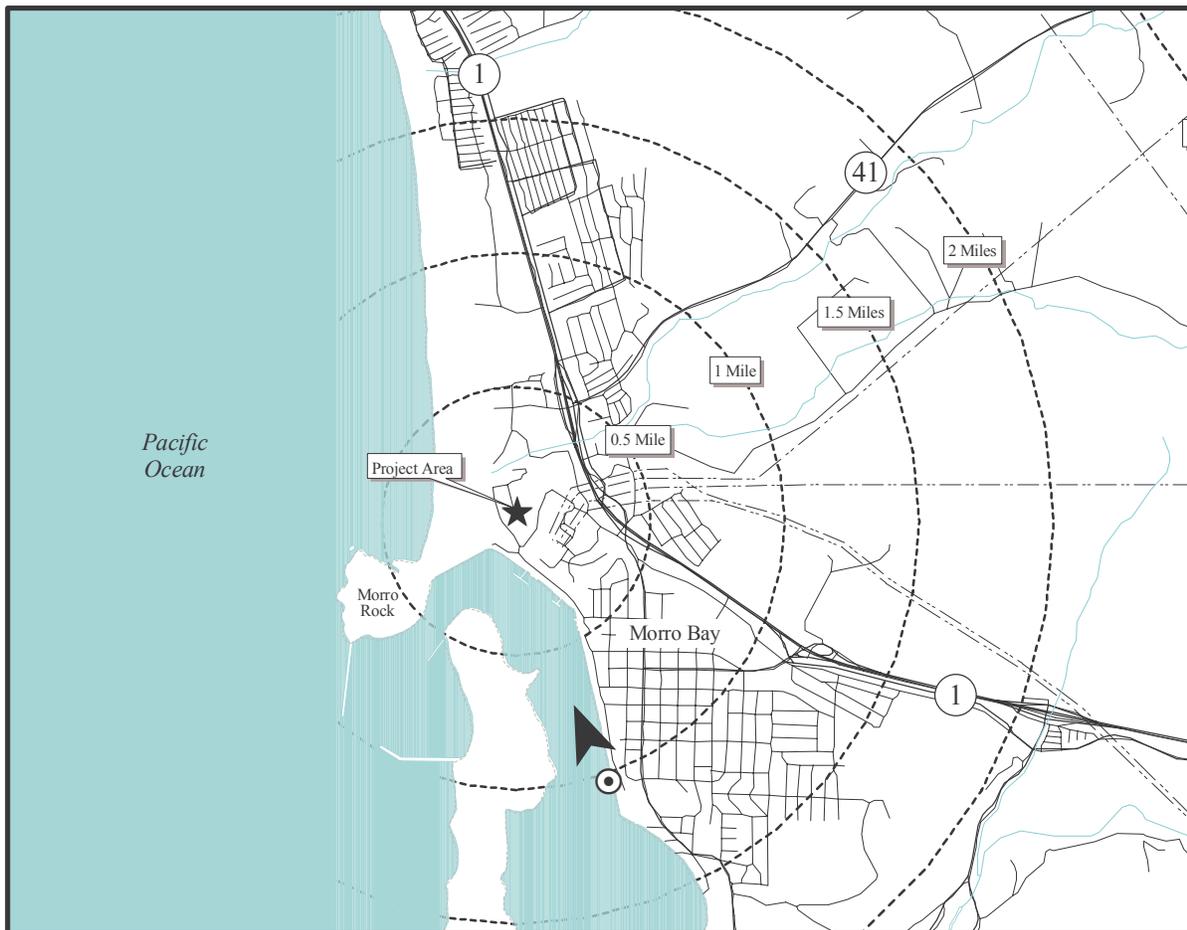
Note: Proper viewing distance is 8" from eye

- Removal of existing power plant and tall stacks improves views of Morro Bay, the coast, and skyline
- Stacks of the Project are visible below the horizon line

KOP 17 - Visual Effect

Positive

Morro Bay
Key Observation Point 18:
View NNW From the Public Dock at Tidelands Park



Key Observation Point 18

Location:	View NNW from the Public Dock at Tidelands Park	
Description:	City of Morro Bay Planning staff recommended this KOP. People with small boats anchored in the bay mainly use this public dock (at Tidelands Park, on the south end of the Embarcadero) to access shore amenities. Dominant view is of the bay, Morro Rock and the sand spit. Activities include rowing, sailing, walking, docking, and picnicking. Long-range views of MBPP over the bay water are to the north in this viewshed. This is a 360-degree view.	
Distance to new stacks: Total Photo Field of View:	5,400 feet or 1.02 miles 105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	Not applicable Not available (1) Not available (1)	Minutes, Hrs/day Minutes/docking
Recreational:		
Mobile:		
Comments:	(1) City of Morro Bay Department of Parks and Recreation and Harbor Department does not have data on how many people use this dock.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	6.73°	5.15°	-1.58°	
Area Occupied by Power Plant (sq. mm. of photo)	163.91	14.90	-149.02	Area to remove (163.91) Area to be added (14.90)
Percent	100%	9%	91%	
Skyline Contrast (sq. mm. of photo)	104.45	0	-104.45	Project lies just below ridgeline in distant view.
Percent	100%	0%	-100%	
Coastal Contrast (sq. mm. of photo)				Project lies adjacent to coastal zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)				Project lies to the right of Morro Rock.
Percent				



KOP 18 Existing Conditions



KOP 18 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

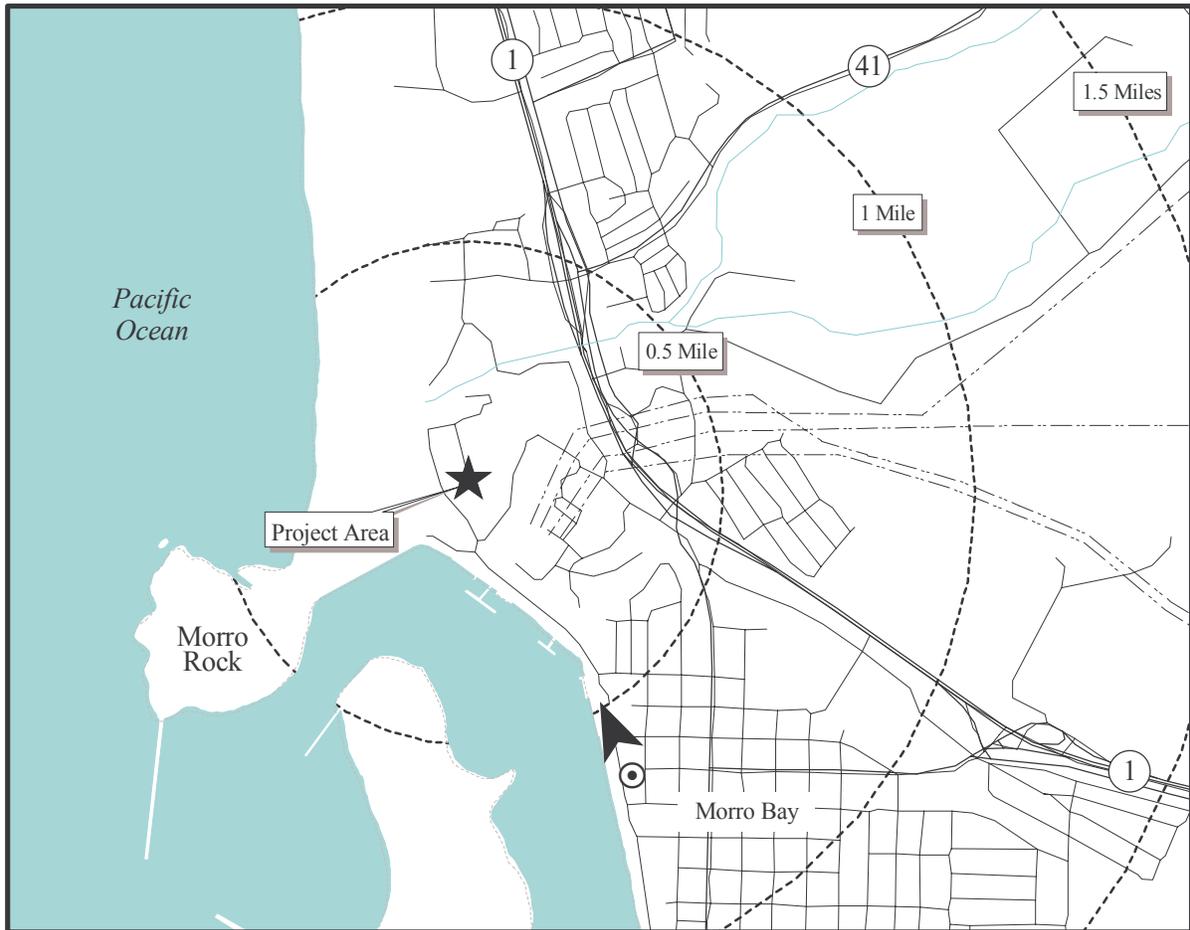
- Removal of the existing power plant and tall stacks is very evident and improves the view
- Stacks of the Project are visible, located left of the existing plant, and are below the distant ridgeline
- Project is partially screened by existing vegetation

KOP 18 - Visual Effect

Positive

**Morro Bay
Key Observation Point 19:**

**View NW From Steps Above Giant
Chessboard at Centennial Park**



Key Observation Point 19

Location:	View NW from steps above Giant Chessboard at Centennial Park	
Description:	View from public steps in the tourist serving area among restaurants and hotels on Market Street in the Embarcadero commercial district. Existing power plant buildings are partially obstructed by commercial structures, although stacks are plainly evident. Panoramic but partially obstructed views over the Embarcadero include the bay, the sand spit, and the Pacific beyond.	
Distance to new stacks:	3,300 feet or 0.63 miles	
Total Photo Field of View:	105.6°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	Not applicable	Minutes/visit
Recreational:	157,181 rooms occupied in Morro Bay, many occupants would visit this location (2)	
Mobile:	Not applicable	
Comments:	(1) City of Morro Bay, Finance Department, Hotel-Motel Occupancy, excluding trailer parks for FY 97/98. Total of 309,318 rooms available at average occupancy of 51%.	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	11.22°	4.49°	-6.73°	Project is located behind existing stacks that are being removed.
Area Occupied by Power Plant (sq. mm. of photo)	405.01	10.64	-394.36	Area to remove (405.01) Area to be added (15.41)
Percent	100%	3%	-97%	
Skyline Contrast (sq. mm. of photo)	357.03	7.90	-349.13	Bulk of existing power plant extends above skyline. Project screened by existing building and vegetation. Stacks minimally extend above skyline.
Percent	100%	2%	-98%	
Coastal Contrast (sq. mm. of photo)				No portion of Project obstructs coastal zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)				Plant lies to right of Morro Rock.
Percent				



KOP 19 Existing Conditions



KOP 19 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

- Removal of existing power plant and tall stacks improves the view
- Stacks of the Project appear above building and protrude slightly into the skyline
- Skyline contrast is greatly reduced
- Project is partially screened by existing vegetation along Embarcadero

KOP 19 - Visual Effect

Positive

**Morro Bay
Key Observation Point 20:**

Direct View WSW From Scenic Highway 1 at Main Street Onramp



Key Observation Point 20

Location:	View West from Scenic Highway 1 at the Main Street Onramp	
Description:	This is the view of the MBPP from where Highway 1 is closest to the existing power plant and Project. Both northbound and southbound traffic would view the Project from this KOP.	
Distance to new stacks:	1600 feet or 0.30 miles	
Total Photo Field of View:	97.8°	
<u>Viewer Types</u>	<u>Quantity</u>	<u>Duration</u>
Residential:	Not applicable	
Recreational:	Not applicable	
Mobile:	19,000 cars per day (1) on Highway 1, plus 11,768 cars per day (2) on Main Street (north of Radcliffe)	Seconds/ view Seconds/ view
Comments:	(1) Includes both Northbound and Southbound Traffic, Caltrans ADT 1997 (2) City of Morro Bay Engineering Department, ADT 1993	

Measurement of Visual Change

Measurement	Existing Conditions	With Project	Visual Change	Comments
Horizontal Field of View Occupied by Power Plant	61.18°	16.37°	-44.81°	Project results in a net decrease in the field of view by 73%.
Area Occupied by Power Plant (sq. mm. of photo)	857.83	629.23	-228.60	Area to remove (857.83) Area to be added (496.39)
Percent	100%	73%	-27%	
Skyline Contrast (sq. mm. of photo)	807.62	577.65	-229.96	Bulk of existing power plant lies to the left of Morro Rock and extends above skyline. Project lies to the right of Morro Rock and is partially screened by vegetation but extends above the skyline.
Percent	100%	72%	-28%	
Coastal Contrast (sq. mm. of photo)				No portion obstructs coastal zone.
Percent				
Morro Rock Contrast (sq. mm. of photo)				Existing power plant and Project do not obstruct views of Morro Rock.
Percent				



KOP 20 Existing Conditions



KOP 20 Future Conditions

Summary of Visual Changes:

Note: Proper viewing distance is 8" from eye

- Removal of existing power plant and tall stacks improve views to sky
- Project is to the right of Morro Rock, and closer to viewer
- Project is partially screened by existing vegetation

KOP 20 - Visual Effect

Positive

Table 6.13-4: Summary of Visual Effects From KOPs

#	Description of View Towards Morro Bay Power Plant	Visual Effect	Design Improvement Features
1	Overview looking WNW from top of Black Mountain	Positive	Removal of existing power plant is obvious even from this long distance.
2	View SSE from Morro Strand State Beach (Beachcomber Drive & Whidbey St.)	Positive	Removal of existing power plant.
3	View S from west side of Highway 1 at San Jacinto St. crossing	Positive	Removal of existing power plant simplifies skyline.
4	View S from The Cloisters Public Park	Positive	Removal of existing power plant. Additions to screen planting on northern berm. New residential homes block the view to the Project.
5	Near view SE from Morro Strand State Beach (west of Atascadero Road parking area)	Negative	Removal of existing power plant. Native planting on enlarged berm on west side of site. Harmonious color selection.
6	Near View S from Morro Dunes Trailer Park and Resort Campground	Negative	Removal of existing power plant, Additional screening and native planting on northern and western berms. Harmonious color selection.
7	Close up view ESE from south of Morro Creek at Embarcadero Road	Neutral	Removal of existing power plant and tanks. Enlarged west berm with landscaping. New pedestrian bridge and bike path.
8	View NE across inlet from Morro Rock on Coleman Drive	Positive	Removal of existing power plant. Heightened west berm with landscaping in front of existing facility.
9	View NNE from North T Pier	Positive	Removal of existing power plant. New landscaping and bike path along Embarcadero.
10	View NW from 1278 Scott St. driveway	Positive	Removal of existing power plant. Replant vegetative screen toward new plant. New bike path.
11	Distant view SW from Highway 41 (300 yd. west of Denny's billboard)	Positive	Removal of existing power plant enhances scenic value of city entrance.
12	View W from Highway 41, Center Turn-lane Miner's Hardware Entrance	Positive	Removal of existing power plant. On-site tree grove in Hwy 41 line of sight.
13	View SSW from Morro Del Mar Subdivision (Near corner of Nutmeg and Casitas Aves.)	Positive	Removal of existing power plant opens views of the coast and ocean. Landscaping screens Project.
14	View SSW from Sunset Plateau (Vacant lot at end of Sunset Court)	Positive	Design shifted Project away from views of Morro Rock and the inlet. Planting as above.
15	Direct view W from Harbor Front Tract (Near Radcliff Street from Berwick Drive)	Positive	View of the rock restored. New stack height minimized. Opened views to harbor and ocean.
16	View WNW from Morro Bay Blvd. Exit from North Bound Highway 1	Positive	Removal of existing power plant beautifies city entrance. New stacks not visible.
17	View NW from Morro Heights Neighborhood (Piney Way and Olive Street)	Positive	Removal of existing power plant. New Project minimized.
18	View NNW from Public Dock at Tidelands Park	Positive	Removal of existing power plant from waterfront. New units barely visible.
19	View NW from steps above Giant Chessboard at Centennial Park	Positive	Removal of existing power plant improves look of tourist serving facilities.
20	View W of Scenic Highway 1 Entrance Ramp at Main Street	Positive	Removal of existing power plant improves view from new scenic highway. New landscaping.

6.13.2.13 Summary of Visual Effects As Measured In KOP Analysis

The KOP Summary Table 6.13-4, preceding this section, identifies 17 Positive, 1 Neutral, and 2 Negative visual effects resulting from the Project. In the final evaluation of visual effects, it is also necessary to consider the viewer frequency at each of these 20 KOPs. Table 6.13-5 groups the KOPs into High, Medium, and Low categories of viewer frequency by approximate number of viewers. It should be noted that, in some cases, quantification of viewers at KOP locations are estimates due to lack of availability of reliable information.

Table 6.13-5: Relative Viewing Frequency From KOPs

Viewing Frequency*	KOP #	Description of Views Towards Morro Bay Power Plant	
HIGH	2	View SSE from Morro Strand State Beach (Beachcomber Drive & Whidbey St.)	Positive
	3	View S from west side of Highway 1 at San Jacinto St. crossing	Positive
	8	View NE across inlet from Morro Rock on Coleman Drive	Positive
	11	Distant view SW from Highway 41 (300 yd. west of Denny's billboard)	Positive
	12	View SW from Highway 41 at Ironwood Avenue	Positive
	16	View WNW from Morro Bay Boulevard. Exit from North Bound Highway 1	Positive
	20	View W of Scenic Highway 1 Entrance/Exit Ramp at Main Street	Positive
MEDIUM	5	Near view SE from Morro Strand State Beach (west of Atascadero Road parking area)	Negative
	13	View SSW from Morro Del Mar Subdivision (Near corner of Nutmeg and Casitas Aves.)	Positive
	15	Direct view W from Harbor Front Tract (Near Radcliff Street on Berwick Drive)	Positive
	17	View NW from Morro Heights Neighborhood (Piney Way and Olive Street)	Positive
	19	View NW from steps above Giant Chessboard at Centennial Park	Positive
LOW	1	Overview looking WNW from top of Black Mountain	Positive
	4	View S from The Cloisters Tract Public Park	Positive
	6	Near View S from Morro Dunes Trailer Park and Resort Campground	Negative
	7	Close up view ESE from south of Morro Creek at Embarcadero Road	Neutral
	9	View NNE from North T Pier	Positive
	10	View NW from 1278 Scott St. driveway	Positive
	14	View SSW from Sunset Plateau (Vacant lot at end of Sunset Court)	Positive
	18	View NNW from Public Dock at Tidelands Park	Positive

*Note: KOPs are listed by numeric order within each category (i.e., High, Medium, Low).

The breakdown of high, medium, and low numbers of viewers in Table 6.13-5 is based on Average Daily Traffic Counts (ADT), California State Park campground statistics, and in-the-field observations.

KOPs 2, 3, 8, 11, 12, 16, and 20 have high numbers of viewers; Highway 1 at San Jacinto (KOP 3) has the highest number of viewers by a substantial margin. Black Mountain (KOP 1) has the lowest. South of Morro Creek at Embarcadero Road (KOP 7) has the next lowest number of viewers. Scott Street driveway (KOP 10) also has a low number of viewers in comparison with other KOPs.

Of the twelve most frequented viewpoints (KOPs in the High and Medium viewing frequency ranges in Table 6.13-5), all but one KOP resulted in a positive effect. This means that a substantial majority of people viewing the Project would see a positive effect.

The full set of visual changes summarized in Tables 6.13-4 and 6.13-5 is fundamental to this analysis and has been considered for the final determination of significance. A negative visual effect from any individual KOP does not by itself mean a finding of overall significant impact for the Project; rather, the cumulative visual effects of all KOPs are weighed. This approach was supported by the California Energy Commission, Commission Decision, Sutter Power Plant Project, Docket No. 97-AFC-2, pp. 125-126, dated April 1999, in which the following statements were made:

In affirming the trial court's rejection of the Association's claims, a three judge panel of the Court of Appeal unanimously stated: "In examining this exception [CEQA Guidelines section 15300.2(c)], we must differentiate between adverse impacts upon particular persons and adverse impacts upon the environment of persons in general. As recognized by the court in *Topanga Beach Renters Assn. v. Department of General Services* (1976) 58 Cal.App.3d 188 [129 Cal.Rptr.739]: '[All government activity has some direct or indirect adverse effect on some persons. The issue is not whether [the project] would adversely affect particular persons, but whether [the project] would adversely affect the environment of persons in general.' [Sec. 21083, subd. (c)]."

We believe the methodology used by the Commission staff could result in a finding of significance whenever the view from a single key observation point is impacted and the extent of impact is evaluated subjectively. By focusing its determination of an entire project's significance on the views from a single key observation point, Staff emphasizes the impact on a particular person or persons rather than evaluating the environmental impacts on a broader scale.

6.13.3 CUMULATIVE IMPACTS

The CEQA Guidelines (Section 15130) require identification of other projects in the area that, when considered together with the Project, could result in cumulative impacts to the region. Cumulative impacts could occur to the extent that impacts related to the Project could combine with impacts from these other projects.

In addition to the Project, Duke Energy is planning one other activity in the vicinity of MBPP in the near-term: demolition of the offsite fuel oil storage tanks. This activity will occur under a County permit. As stated above, the MBPP is entirely in an area designated and zoned as Coastal-Dependent Industrial (M-2), including the outfall. No cumulative land use impacts will occur as a result of the offsite tank demolition and the Project.

As discussed in detail in Chapter 6.0 - Environmental Information, there are 16 known proposed land use development projects within 5 miles of the MBPP. According to the City of Morro Bay's Public Services Department, Planning Division, there has only been one recent zoning change in the vicinity of the MBPP study area and it will not impact the Project.

The major and small projects within the prescribed study area are described in Chapter 6.0 - Environmental Information.

The City of Morro Bay, County of San Luis Obispo and Caltrans were contacted to identify offsite public and private projects in the immediate Morro Bay area and in the broader area of San Luis Obispo County which have the potential to have a cumulative impact when combined with the Project at MBPP. Based on the information obtained, potential cumulative projects are described briefly in Section 6.1.4 for the purpose of this AFC. The locations of these cumulative projects are shown in Figures 6.1-1 (those in the City of Morro Bay) and 6.1-2 (those in San Luis Obispo County).

No cumulative land use impacts have been identified as it is reasonable to assume that approval of the cumulative projects by the City of Morro Bay will require that the projects are consistent with applicable land use policies and the City of Morro Bay General Plan.

The Project and the offsite projects within a 5-mile radius are consistent with the City of Morro Bay General Plan and related policies including permitted uses in the City of Morro Bay Zoning Ordinance.

6.13.4 APPLICABLE LAWS, ORDINANCES, REGULATIONS, & STANDARDS

Applicable laws, ordinances, regulations and standards related to **visual quality** are identified and summarized in Table 6.13-6.

Applicable laws, ordinances, regulations, and standards applicable to **landscaping** are presented in Table 6.13-7.

Table 6.13-6: Applicable Laws, Ordinances, Regulations and Standards Relating to Visual Quality

Policy #	Policy Text Relating to Visual Quality	Is Project Consistent with Policy?	Basis for Consistency with Program, Policy, or Regulation	6.13 Visual Resource Analysis Section Where Discussed
CITY OF MORRO BAY GENERAL PLAN (GP)				
GP Policy LU-19	The City should do everything it possibly can to keep the fishing village atmosphere and balance the mixture of the land uses on the Embarcadero. (LUE 34)	YES	Assuming the implementation of the agreements called out in the February 2000 MOU between the City of Morro Bay and Duke Energy, the intake building exterior will be renovated. The power plant adds to the balance of mixture of land uses on the Embarcadero.	6.13.2.3 Design Considerations for Reduced Visual Impact Illustration 6.13.1
GP Program LU-39.1	The City shall designate the existing PG&E parcel and the Chevron pier parcel as coastal-dependent industrial uses. Any proposals for energy-dependent industrial uses within zones designated for general industrial development will require an amendment to the land use plan consistent with Section 30515 of the Coastal Act. Power plant expansion ¹ on PG&E owned property shall have priority over other coastal dependent industrial uses. Power plant expansion shall be limited to small facilities whose location would not further affect the views of Morro Rock from State Highway One and high use visitor-serving areas, consistent with	YES	The Project is sited to not further affect the views of Morro Rock from Highway 1 and high use visitor serving areas. Furthermore, removal of the existing plant opens views to Morro Rock.	6.13.2.12 KOP Analysis Illustration 6.13.1

¹ The word "expansion" appears in many of the City of Morro Bay's planning documents. The Project is a modernization and is not an expansion. Nonetheless, the Project complies with those planning elements that refer to "expansion."

Policy #	Policy Text Relating to Visual Quality	Is Project Consistent with Policy?	Basis for Consistency with Program, Policy, or Regulation	6.13 Visual Resource Analysis Section Where Discussed
	Policy 12.11 of the LCP. (LCP 122)			
GP Program LU-40.16	As a condition of any expansion of the PG&E power plant, the City will require substantial landscaping and screening to mitigate the visual impacts of existing and future facilities; with particular emphasis on screening the facilities located between the power plant and Highway 1.	YES	This AFC considers visual impacts and aspects of the Project in this visual resources section, including specified landscaping and screening.	Landscaping Concept Attachment 6.13-1
GP Program VR-3.4	Industrial developments shall be sited and designed in areas specifically designated in the Land Use Plan to protect views to and along the ocean and scenic areas, to minimize land alteration, to be visually compatible with the character of the surrounding areas, and where feasible, shall include measures to restore and enhance visually degraded areas. In addition , industrial development shall be subordinate to the character of its setting.	YES	The Project is designed and sited to minimize land alteration, is visually compatible with the industrial area, and proposes measures to restore and enhance visually degraded areas.	6.13.2.12 KOP Analysis 6.13.2.3 Design Considerations for Reduced Visual Impact Landscaping Concept Attachment 6.13-1
GP Program LU-62.1	All developments at or adjacent to the harbor or beach areas shall provide for physical and visual public access to these features.	YES	Project development provides physical and/or visual public access to the harbor or beach areas. The Project improves physical and visual access by removing the three existing 450-foot tall stacks and the existing power building for Units 1-4, constructing a bridge over Morro Creek, and creating a pedestrian and bike path circulation loop around the MBPP property.	Same as above
CITY OF MORRO BAY COASTAL LAND USE PLAN (LCP)				
Chapter III. Shoreline Access and Recreation				
LCP Policy 1.17	When PG&E property is needed for coastal-dependent energy industrial uses, a vertical (east-west) public access path for pedestrians and bicyclists no less than 10 feet in width shall be required as a condition of development, consistent	YES	The Project significantly improves coastal access by creating or improving three segments of a bike and pedestrian path around the plant site. Of particular importance is a bridge over Morro Creek and a new east-west bike path between Highway 1 and the	Proposed Landscape Zones Map Attachment 6.13-1. KOP #7

Policy #	Policy Text Relating to Visual Quality	Is Project Consistent with Policy?	Basis for Consistency with Program, Policy, or Regulation	6.13 Visual Resource Analysis Section Where Discussed
	review: a) Building height/bulk relationship compatible with existing surrounding uses; b) Landscaping to restore and enhance visually degraded areas using native and drought resistant plant and tree species; and c) Preservation and enhancement of views of the ocean, bay, sand spit, and Morro Rock; Any other requirements applicable from Coastal Commission conceptual approval of the Urban Waterfront Restoration Plan.	YES YES YES		Landscaping Concept Attachment 6.13-1 Landscape Zones B,E, F, H, L text and Plant Lists 6.13.2.12 KOP Analysis
LCP Policy 12.06	New development in areas designated on Figure 31 as having visual significance shall include as appropriate the following: a) Height/Bulk relationships compatible with the character of the surrounding areas or compatible with neighborhoods or special communities which, because of their unique characteristics, are popular visit destination points for recreation uses. b) Designation of land for parks and open space in new developments which because of their location are popular destination points for recreation uses. c) View easement or corridors designed to protect views to and along the ocean and scenic and coastal areas.	YES N/A YES	The Project areas is shown on Figure 31 of the City's CLUP. The Project will improve the height/bulk relationships, coastal access for recreational users, and view corridors, as compared to the existing facilities.	6.13.2.3 Design Considerations for Reduced Visual Impact Landscaping Concept Attachment 6.13-1 KOP 10 Future Condition
LCP Policy 12.08	Morro Bay shall request the division of Highways to develop a plan and program for landscaping the entire length of State Highway One as it traverses through the community that would:	YES	Duke Energy will coordinate landscaping of the site with the City of Morro Bay and PG&E.	6.13.2.3 Design Considerations for Reduced Visual Impact

Policy #	Policy Text Relating to Visual Quality	Is Project Consistent with Policy?	Basis for Consistency with Program, Policy, or Regulation	6.13 Visual Resource Analysis Section Where Discussed
	a) Frame and protect important views; b) Screen unattractive views c) Accentuate entrances to the City.			Landscaping Concept Attachment 6.13-1
LCP Policy 12.11	Industrial development will be sited and designed in areas specifically designated in the Land Use Plan to protect views to and along the ocean and scenic coastal areas, to minimize land alteration, to be visually compatible with the character of the surrounding areas, and where feasible, shall include measures to restore and enhance visually degraded areas. In addition, industrial development shall be subordinate to the character of its setting.	YES	This AFC considers visual impacts and aspects of the Project in this visual resources chapter and outlines design features as appropriate. By removing the three 450-foot tall stacks and the existing power building for Units 1-4, the Project will significantly enhance views and reduce visual impacts.	6.13.2.12 KOP Analysis 6.13.2.3 Design Considerations for Reduced Visual Impact KOP 10 Future Conditions

Table 6.13-7: Applicable Laws, Ordinances, Regulations, and Standards Relating to the Landscaping Concept

Policy #	Policy Text Relating to Landscaping Concept	Is Project Landscaping Concept Consistent with Policy?	Basis for Consistency with Program, Policy, or Regulation	Landscaping Concept - Section Where Discussed Attachment 6.13-1
CITY OF MORRO BAY GENERAL PLAN (GP)				
GP Program LU-37.8	Public rest areas should be incorporated into the street rights-of-way in Downtown and the Embarcadero. These areas should consist of benches, trash receptacles, drinking fountains, landscaping, information signing or kiosks, and decorative paving and planters.	YES	The Landscaping Concept provides interpretive signs and benches along Embarcadero.	Landscape Zone A text
GP Program LU-40.15	Any expansion ² of the PG&E power plant shall give priority to the options that would best utilize available on-site space. Additionally, no dune areas should be disrupted unless there is no other less environmentally damaging alternative. PG&E shall contribute to the dunes stabilization program and reimburse their pro rata share of any Coastal Conservancy (or City) expenditure for dune stabilization in this area.	YES	The Project is a modernization of the existing MBPP facility and the power generating facilities will occur entirely on the existing previously disturbed MBPP site. The least disruptive location for the construction road has been chosen though grasslands to avoid dune scrub habitat scrub habitat and will follow the existing dirt road alignment. The bridge will span Morro Creek with footings outside of the riparian area. The Landscaping Concept proposes the restoration/revegetation of the dune scrub habitat in the west portion of the Property.	Landscape Zone B text; Proposed Landscape Zones Map
GP Program LU-40.16	As a condition of any expansion of the PG&E power plant, the City will require substantial landscaping and screening to mitigate the visual impacts of existing and future facilities, with particular emphasis on screening the facilities located between the power plant and Highway 1.	YES	This AFC considers visual impacts and aspects of the Project in the visual resources section, including specified landscaping and screening. See Section 6.13 for a full discussion of Visual Resources.	Landscape Zones C, D, G, I text

² The word "expansion" appears in many of the City of Morro Bay's planning documents. The Project is a modernization and is not an expansion. Nonetheless, the Project complies with those planning elements that refer to "expansion."

Policy #	Policy Text Relating to Landscaping Concept	Is Project Landscaping Concept Consistent with Policy?	Basis for Consistency with Program, Policy, or Regulation	Landscaping Concept - Section Where Discussed Attachment 6.13-1
GP Program LU-55.2	Development in areas adjacent to ESH areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade such areas, and shall maintain the habitats' functional capacity.	YES	The Project is sited and designed to prevent impacts to adjacent environmentally sensitive habitat areas.	Landscape Zone B and Landscape Zone D text
GP Program LU-55.7	Only native vegetation shall be planted in the habitat areas of rare or endangered species. Where feasible, use of drought-tolerant plants of a native variety shall be used in coastal zone areas.	YES	The Landscaping Concept calls for the planting of native drought tolerant plants in appropriate areas.	Landscape Zone B text
GP Program LU-55.9	Where riparian vegetation has been previously removed, except for stream channelization, the buffer shall allow for the reestablishment of riparian vegetation to its prior extent to the greatest degree possible.	YES	The Project's power generating structures will be placed outside of the 100 foot buffer areas. The existing berms will be retained for flood protection. A sound wall will be added as a design improvement on top of the northern berm to reduce sound and act as a visual screen for wildlife. The gas pipeline interconnection will be directionally drilled to avoid impacts to the ESH. The Landscaping Concept proposes to plant riparian vegetation and plants in the ESH buffer zone.	Landscape Zone D text
GP Program LU-55.14	No vehicle traffic shall be permitted in wetlands, and pedestrian traffic shall be regulated and incidental to the permitted uses. New development adjacent to wetlands shall not result in adverse impacts due to additional sediment, runoff, noise, and other disturbances.	YES	The Project will only allow limited pedestrian traffic in wetlands that is regulated and incidental to the permitted use. The Project will not result in adverse impacts to Environmentally Sensitive Habitat areas or adjacent wetlands. Landscaping Concept calls for the collection of seeds and cuttings from adjacent ESH native vegetation. Use of all plant material for restoration purposes will be coordinated with CDFG for approval. Pedestrian traffic will be very limited to the	Landscape Zone D text

Policy #	Policy Text Relating to Landscaping Concept	Is Project Landscaping Concept Consistent with Policy?	Basis for Consistency with Program, Policy, or Regulation	Landscaping Concept - Section Where Discussed Attachment 6.13-1
			supervised collecting of seeds and cuttings in the ESH area. There will be a landscaped berm and required buffer area separating the ESH from the Project to ensure no adverse impacts.	
GP Policy LU-56	Morro Bay sand spit, Morro Rock, and existing wildlife habitats should be preserved in their natural state.	YES	Reforestation and revegetation will occur to maintain and preserve the natural habitat.	Landscape Zones B, C, D, J text
GP Program LU-58.2	Coastal dune habitats shall be preserved and protected from all but resource-dependent, scientific, educational, and passive recreational use. Disturbance or destruction of any dune vegetation shall be prohibited, unless no feasible alternative exists, and then only if revegetation is made a condition of project approval. Such revegetation shall be with native plants propagated from the disturbed sites or from the same species at adjacent sites.	YES	The Project will not disturb dune scrub habitat in connection with building the construction road. The least disruptive location for the construction road has been chosen through grasslands avoiding dune scrub habitat. Existing dirt alignment will be used for the construction road and bike/pedestrian path. After the grading and surfacing of the construction road, care will be given to restore the dune scrub habitat areas with native and appropriate plant species.	Landscape Zone B text; Proposed Landscape Zones Map,
GP Policy LU-62.1	All development at or adjacent to the harbor or beach areas shall provide for physical and visual public access to these features.	YES	Project development provides physical and/or visual public access to the harbor or beach areas. The Project improves physical and visual access by removing the three existing 450-foot tall stacks and the existing power building for Units 1-4, constructing a bridge over Morro Creek, and creating a pedestrian and bike path circulation loop around the MBPP property. The Landscaping Concept calls for the trimming of tall eucalyptus trees to improve viewsheds to the harbor, Morro Rock, and the Pacific from the Harbor Front Tract and Scott Street neighborhoods.	Proposed Landscape Zones Map

Policy #	Policy Text Relating to Landscaping Concept	Is Project Landscaping Concept Consistent with Policy?	Basis for Consistency with Program, Policy, or Regulation	Landscaping Concept - Section Where Discussed Attachment 6.13-1
GP Policy LU-77	Mixed Use Area H: Within this area, uses allowable under any of the applicable land use and zone designations are encouraged as primary uses of the area. Open space uses or commercial fishing support facilities may be proposed either singly or in a mixed use pattern.	YES	Mixed Use Area H includes the Den Dulk property. Duke Energy is pursuing a purchase option agreement as part of the Project. The potential purchase of the property could improve coastal access, provide a buffer between the new plant and public uses, and may facilitate the City of Morro Bay's implementation of its Waterfront Master Plan.	Landscape Zone B
GP Program LU-83.3	All open spaces within developed areas should be planted with ground cover plant material.	YES	Care has been given to the selection of ground cover plant species with the ability to prevent soil erosion.	Landscaping Plant Lists for Landscape Zones A, B, D
GP Policy C-1	Sidewalks should be provided along existing commercial, industrial, and multi-family residential streets where no sidewalks currently exist.	YES	The Project significantly improves coastal access by creating or improving three segments of a bike and pedestrian path around the plant site. Of particular importance is a bridge over Morro Creek and a new east-west bike path between Highway 1 and the Embarcadero (see Figures 6.9-7 and 6.9-8).	Proposed Landscape Zones Map
GP Program C-1.4	Future walkways and bikeway on PG&E (now Duke Energy) property along its Embarcadero frontage should be designed in a meandering fashion to minimize loss of existing trees and landscaping. Reduced walkway and/or bikeway widths (or a combined facility) may be allowed where necessary to retain landscaping.	YES	The Project significantly improves coastal access by creating or improving three segments of a bike and pedestrian path around the plant site. Of particular importance is a bridge over Morro Creek and a new east-west bike path between Highway 1 and the Embarcadero (see Figures 6.9-7 and 6.9-8). The Landscaping Concept will minimize loss of existing trees and landscaping.	Landscape Zone A

Policy #	Policy Text Relating to Landscaping Concept	Is Project Landscaping Concept Consistent with Policy?	Basis for Consistency with Program, Policy, or Regulation	Landscaping Concept - Section Where Discussed Attachment 6.13-1
GP Policy C-3	Handicap access should be provided where feasible pursuant to State Disabled Access Regulations.	YES	Public landscaping areas that include community pedestrian/bike paths will be provided where feasible to meet the requirements of the State Disabled Access Regulations.	Section 6.13.2.3 of AFC and Zone A of Landscaping Concept
GP Program C-9.1	Bike paths or lanes designated on the Bikeway Plan should be provided within or adjacent to any new development or major reconstruction as a condition of the development approval. Class I separated bikeways will only be implemented where adequate right-of-way exists, such as within Morro Bay State Park and within Planned Unit Developments.	YES	The Project significantly improves coastal access by creating or improving three segments of a bike and pedestrian path around the plant site. Of particular importance is a bridge over Morro Creek and a new east-west bike path between Highway 1 and the Embarcadero (see Figures 6.9-7 and 6.9-8).	Proposed Landscape Zones Map; and Landscape Zones A, K text
GP Policy AR-18	Until the PG&E property is needed for coastal-dependent energy industrial uses, interim commercial/recreational fishing and boating uses and access uses shall be allowed as provided for in Policy 5.02. . . . When PG&E property is needed for coastal-dependent energy industrial uses, a vertical (east-west) public access path for pedestrians and bicyclists no less than 10 feet in width shall be required as a condition of development, consistent with public safety needs and the need to protect the operations of the new facilities. The exact location of the accessway shall be determined during project review for development permit approval. A location paralleling the creek shall be allowed, provided the path does not encroach into ESH areas or buffer zones.	YES	The Project significantly improves coastal access by creating or improving three segments of a bike and pedestrian path around the plant site. Of particular importance is a bridge over Morro Creek and a new east-west bike path between Highway 1 and the Embarcadero (see Figures 6.9-7 and 6.9-8). The bridge will span Morro Creek and with footings outside of the riparian area.	Proposed Landscape Zones Map, and Landscape Zone K text

Policy #	Policy Text Relating to Landscaping Concept	Is Project Landscaping Concept Consistent with Policy?	Basis for Consistency with Program, Policy, or Regulation	Landscaping Concept - Section Where Discussed Attachment 6.13-1
CITY OF MORRO BAY LOCAL COASTAL PLAN (LCP)				
LCP Policy 1.17	When PG&E property is needed for coastal-dependent energy industrial uses, a vertical (east-west) public access path for pedestrians and bicyclists no less than 10 feet in width shall be required as a condition of development, consistent with public safety needs. A location paralleling the creek shall be allowed, provided the path does not encroach into ESH areas of buffer zones.	YES	The Project significantly improves coastal access by creating or improving three segments of a bike and pedestrian path around the plant site. Of particular importance is a bridge over Morro Creek and a new east-west bike path between Highway 1 and the Embarcadero (see Figures 6.9-7 and 6.9-8). The bridge will span Morro Creek and with footings outside of the riparian area.	Proposed Landscape Zones Map, and Landscape Zone K text
LCP Policy 5.20	Any of the PG&E power plant shall give priority to the options that would best utilize available on-site space. Additionally, no dunes areas should be disrupted unless there is no other less environmentally damaging alternative. PG&E shall contribute to the dunes stabilization program and reimburse their pro rata share of any Coastal Conservancy (or City) expenditure for dune stabilization in this area.	YES	The Project is a modernization of the existing MBPP facility and the power generating facilities will occur entirely on the existing previously disturbed MBPP site. The least disruptive location for the construction road has been chosen though grasslands to avoid dune scrub habitat and will follow the existing dirt road alignment. The bridge will span Morro Creek with footings outside of the riparian area.	Proposed Landscape Zones Map, Landscape Zone B text
LCP Policy 5.21	As a condition of any expansion of the PG&E power plant, the City will require substantial landscaping and screening to mitigate the visual impacts of existing and future facilities with particular emphasis on screening the facilities between the power plant and Highway 1.	YES	This AFC considers visual impacts and aspects of the Project in the visual resources section, including specified landscaping and screening. See Section 6.13 for a full discussion of Visual Resources.	Landscape Zones C, D, G, I text
LCP Policy 9.09	Temporary vegetation, seeding, mulching, or other suitable stabilization methods shall be used to protect soils subject to erosion that have been disturbed during grading or development. All cut and fill slopes shall be stabilized immediately with	YES	The Landscaping Concept proposes that the berm slopes surrounding the Project be stabilized with a variety of groundcovers known to prevent soil erosion, are natives, and are appropriate to that particular Landscape Zone.	Landscape Zones A, B, D text

Policy #	Policy Text Relating to Landscaping Concept	Is Project Landscaping Concept Consistent with Policy?	Basis for Consistency with Program, Policy, or Regulation	Landscaping Concept - Section Where Discussed Attachment 6.13-1
	planting or native grasses and shrubs, appropriate nonnative plants, or with accepted landscaping practices.			
LCP Policy 11.02	Development in areas adjacent to ESH areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade such areas, and shall maintain the habitats' functional capacity.	YES	The Project is sited and designed to prevent impacts to adjacent environmentally sensitive habitat areas.	Landscape Zones B and D text
LCP Policy 11.10	Only native vegetation shall be planted in the habitat areas of rare or endangered species. Where feasible, use of drought-tolerant plants of a native variety shall be used in coastal zone areas.	YES	All revegetation associated with the Project will use native and drought tolerant species.	Landscape Zone B text; and all Landscape Zones
LCP Policy 11.17	The biological productivity of the City's ESH areas shall be maintained and, where feasible, restored through maintenance and enhancement of the quantity and quality of Morro and Chorro groundwater basins and through prevention of interference with surface water flow. Stream flows adequate to maintain riparian and fisheries habitat shall be protected.	YES	The Project will maintain Environmentally Sensitive Habitat areas and Morro groundwater basin. The Project will not impact the stream flow of Morro and Willow Camp Creeks. The grading plan shows drainage away from Morro and Willow Camp Creeks. The on-site ESH area will be protected, maintained, and restored through enhancement of bordering ESH areas with genetically compatible plant species through the process of collecting seeds and cuttings to use in propagation of plant stock to be planted. Use of all plant material for restoration purposes will be coordinated with CDFG for approval.	Landscape Zone D text
LCP Policy 11.19	No vehicle traffic shall be permitted in wetlands, and pedestrian traffic shall be regulated and incidental to the permitted uses. New development adjacent to wetlands shall not result in adverse impacts due to additional sediment, runoff, noise,	YES	The Project will only allow limited pedestrian traffic in wetlands that is regulated and incidental to the permitted use. The Project will not result in adverse impacts to Environmentally Sensitive Habitat areas or adjacent wetlands. The Landscaping Concept	Proposed Landscape Zones Landscape Zone D text

Policy #	Policy Text Relating to Landscaping Concept	Is Project Landscaping Concept Consistent with Policy?	Basis for Consistency with Program, Policy, or Regulation	Landscaping Concept - Section Where Discussed Attachment 6.13-1
	and other disturbances.		calls for the collection of seeds and cuttings from on-site ESH native vegetation. Pedestrian traffic will be very limited to the supervised collecting of seeds and cutting in the ESH area. Use of all plant material for restoration purposes will be coordinated with CDFG for approval.	
LCP Policy 11.20	Coastal dune habitats shall be preserved from all but resource-dependent, scientific, educational and passive recreational use. Disturbance or destruction of any dune vegetation shall be prohibited, unless no feasible alternative exists, and then only if revegetation is made a condition of project approval. Such revegetation shall be with native plants propagated from the disturbed sites or from the same species at adjacent sites.	YES	The Project will not disturb dune scrub habitat in connection with building the construction road. The least disruptive location for the construction road has been chosen through grasslands avoiding dune scrub habitat. An existing dirt road alignment will be used for the construction road and bike/pedestrian path. The road will be staked by qualified biologists to ensure that dune scrub habitat will be avoided. Motorized vehicles will be confined to the construction road for the Project. The Project will maintain the existing buffer zones for dune scrub habitat. After the grading and surfacing of the construction road, care will be given to restore the dune scrub habitat areas with native plant species.	Landscape Zone B text Proposed Landscape Zones Map
LCP Policy 12.01	The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic and coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of the surrounding areas, and where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in Figure 31 [see Figure 6.13-6], shall be subordinate to the character of its setting.	YES	MBPP is designated on Figure 31 as an area of visual significance. Duke Energy designed the Project to enhance visual views and make the modernized facility subordinate to the natural coastal setting. This AFC considers visual impacts and aspects of the Project in this visual resources chapter and outlines design features as appropriate. The Project will significantly improve views and viewsheds, as compared to existing facilities. The Landscaping Concept proposes extensive restoration and enhancement of visual quality in visually degraded areas through the selection of appropriate plant species. The Landscaping Concept is designed to protect views to and along the coastal areas	6.13.2.12 KOP Analysis 6.13.2.3 Design Considerations for Reduced Visual Impact Landscaping Concept Attachment 6.13-1

Policy #	Policy Text Relating to Landscaping Concept	Is Project Landscaping Concept Consistent with Policy?	Basis for Consistency with Program, Policy, or Regulation	Landscaping Concept - Section Where Discussed Attachment 6.13-1
			bordering the property by selection of plant species that do not block views because of their low height. Where eucalyptus trees currently block views to the coast, those particular trees will be trimmed to below nearby berm height to open views to Morro Rock, the sand spit, and harbor from the Harbor Front Tract and Scott Street neighborhood.	Landscape Zones B, E, F, H, L text and Plant Lists
LCP Policy 12.02	<p>Permitted development shall be sited and designed to protect views to and along the coast and designated scenic areas and shall be visually compatible with the surrounding areas. Specific design criteria shall be established for the following areas:</p> <ul style="list-style-type: none"> c) The Embarcadero (defined in Policy 2.03) d) Downtown commercial area <p>The criteria shall include the following specific requirements and shall be applied to proposed projects on a case-by-case basis during architectural review:</p> <ul style="list-style-type: none"> d) Building height . . . (N/A) e) Landscaping to restore and enhance visually degraded areas using native and drought resistant plant and tree species; f) Preservation and enhancement of views of the ocean, bay, sand spit and Morro Rock; d) Any other requirements applicable from Coastal Commission conceptual approval of the Urban Waterfront Restoration Plan (N/A). 	YES	<p>This AFC considers visual impacts and aspects of the Project in the visual resources section and outlines design features as appropriate (see Section 6.13). The Project will be in compliance with Policy 12.02.</p> <p>The Landscaping Concept calls for the restoration and enhancement of views of the Pacific, Bay, sand spit and Morro Rock. Native and drought-resistant plant and tree species are proposed throughout. Existing views are protected and new viewsheds will be improved to the coastline.</p>	<p>Landscaping Concept Attachment 6.13-1</p> <p>Landscape Zones B, E, F, H, L text and Plant Lists; and Proposed Landscape Zones Map</p>

6.13.5 OVERALL VISUAL ASSESSMENT

The preceding analysis of the 20 KOPs evaluates the changes to each view on a clear day. Each KOP was assessed based upon an objective measurement of the visual change resulting from the Project compared to existing conditions. The overall visual effect of the Project at each KOP was then rated as positive, negative, or neutral. It should be remembered that KOPs were selected specifically to represent areas from which the Project is visible. There are many other vantage points where the Project is not visible. In evaluating this overall assessment, it is important to note that the law and Commission policy requires that all views be considered collectively to obtain an overall assessment.

A number of factors contribute to the overall visual assessment and conclusions regarding visual impact:

1. Twenty KOPs were evaluated as being representative of the Project within the local community and region. Observations and findings are found on each KOP sheet (Section 6.13.2.11), and summarized in Table 6.13-5.
 - 17 KOPs were found to have a positive visual effect
 - 1 KOP was found to have a neutral visual effect
 - 2 KOPs were found to have a negative effect

The positive findings generally occur throughout the City of Morro Bay, South to Los Osos and North to Cayucus, wherever removal of the existing power plant is evident. Especially positive findings are produced when views of Morro Rock become free of the existing power plant as a competing element in the landscape, as in KOPs 10, 11, and 15.

Only one neutral finding occurred with KOP 7 when the benefits of removing the existing power plant are balanced against the proximity of the Project.

Two negative findings occurred (KOPs 5 and 6) due to the proximity of the viewer to the Project, where the benefits of removing the existing power plant were farther away. The increased berm height, additional vegetation screening, and landscaping would all contribute to reducing the negative effect from these two KOPs. Most importantly, these vantage points are not frequented by many viewers (see Table 6.13-6); additionally, the viewer at these locations is typically orientated toward the ocean, not the Project.

2. The Project is located in a coastal marine environment where reduced visibility due to fog and haze is common. When weather reduces visibility, the Project would be substantially less visible than assumed for KOP analyses. From more distant locations, the Project would not be visible on such days. Simply put, the local weather can often act to mitigate the impact of the Project beyond the “most visible” conditions assumed in the KOP depictions.
3. The design improvements presented in Section 6.13.2.3, including the minimization of building enclosure, the selected location to minimize the stack height, the landscape plan, the improvement in night lighting, and the color palette, would all result in additional positive visual effects.
4. The water droplet plume resulting from the Project would be visible much less frequently than the existing water droplet plume.
5. The Project is in compliance with local plans and policies dealing with visual quality.
6. The cumulative impacts are positive, particularly due to the removal of the existing power plant and the fuel storage tanks.

Based upon the above six factors, the conclusion is that the Project would not have a significant adverse visual impact on the local environment pursuant to CEQA. In fact, it would have an overall positive visual effect for the City of Morro Bay.

6.13.6 DETERMINATION OF SIGNIFICANCE

A project has a significant effect on the environment if “[a] proposed project has the potential to degrade any quality of the environment” [Public Res. Code Section 21083(a); 14 CA Code of Regs. Section 15065(a)]. Additional significance criteria are based on CEQA Guidelines, Appendix G, Environmental Checklist Form (approved January 1, 1999). The findings for the MBPP as presented in this AFC are as follows:

- NO substantial adverse effect on a scenic vista;
- NO damage to scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway;
- NO substantial degradation of the existing visual character or quality of the site and its surroundings;

- NO creation of a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

These findings clearly indicate that the visual impacts of the Project do not meet the California Environmental Quality Act's requirement for significance as being "a substantial, demonstrable negative aesthetic effect."

6.13.7 MITIGATION

Based on the incorporation of specific design improvements into the Project, no additional mitigation measures are required or proposed. Landscaping is a design improvement that is a part of the Project, with details presented in the Landscaping Concept included as Attachment 6.13-1.

6.13.8 REFERENCES / SOURCES OF INFORMATION

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LANDSCAPING CONCEPT— ATTACHMENT 6.13-1

Duke Energy values the coastal location and the natural beauty surrounding the MBPP property and is devoted to responsible stewardship of the property. Within the existing 107-acre MBPP industrial complex, approximately 45 acres will be improved with small areas of reforestation and restoration of native dune and riparian vegetation and decorative landscaping. These landscaping improvements are derived in part from community and City staff input gleaned from many public workshops and meetings. The landscaping proposals are intended to improve the Embarcadero and harbor areas and are consistent with local and state policies.

The purpose and benefits of landscaping

Duke Energy is investing in landscaping to enhance the appearance of the Project for the City of Morro Bay and in the process will improve the ways the natural landscape functions in support of the overall site. The landscaping concept provides: areas to absorb rainfall to assist in reducing storm water runoff and control erosion; plant materials established to decrease glare and provide a wind break; California native plants incorporated to conserve water and attract wildlife; removal of invasive species to open coastal views; and dune scrub habitat restoration to ensure dune scrub stabilization.

Selection of Plant Materials

A comprehensive site analysis was performed on the MBPP site over a period of 18 months in which site microclimates were documented (see Figure 6.13-A1a, Site Microclimates). Microclimates isolate the climatic differences between specific areas of the site that plant materials will respond to. For example; the berms on the west side of the site receive salt laden northwesterly winds off the ocean which is a very harsh environment for plants, whereas the protected sunny areas are warmer and attractive to a broader plant material palette. The site microclimates are the basis of the described landscape zones to be addressed by the Project. (see Figure 6.13-A1b, Proposed Landscape Zones). After the landscape zones are described, the implementation of the landscaping is addressed in the Proposed Phasing of Landscape Installation as illustrated in Figure 6.13-A1c.

Description of Existing Site Microclimates

The 107-acre MBPP site has a variety of microclimate areas that are created by factors such as exposure to the sun or prevailing northwesterly winds. Different locations on site can have very different microclimates at any moment of the day. The following brief descriptions of the microclimate areas correspond directly to the Existing Site Microclimates Map (Figure 6.13-A1a).

Area A: Prevailing northwesterly winds – strong winds; elevated areas (berms) receive the brunt force of salty, moist air.

Area B: Protected from winds, low in elevation; creek area – willows keep air currents calm - areas of thick low shade, and moist air.

Area C: Very shaded area (by trees) especially in winter on the east slope of a hill protected from winds; cool but typically calm air currents. Monarch butterflies particularly appreciate the calm air currents during their migration stopover in late November through January.

Area D: Exposure to northwesterly winds – open area, a bit protected by existing berms but mostly exposed to salty, moist air.

Area E: Area tends to be warmer than western areas of property – creek vegetation blunts northwesterly winds. Air a bit drier than western portion of the property. Fog lifts here prior to other areas of the property on foggy days.

Area F: Open, exposed area but somewhat protected by winds because of topography (large pit area). Full exposure to sun (no shade or trees).

Area G: Area open to northwesterly winds; exposure to sun, typically salty, moist air currents, harsh elements. On hot days this area holds heat.

Area H: Area protected from northwesterly winds by large structure of existing power plant and stacks – the large size of the building blocks the wind and forms a sun shadow which creates cooler air temperatures around the building.

Area I: Cooler air temperatures from sun shadow caused by height and bulk of existing power plant.

Duke Energy Morro Bay, L.L.C.

Existing Microclimates

-  Receives Strong Ocean Winds
-  Lower Protected Riparian Area
-  Shaded & Wind Protected Area
-  Winds Deflected by Berms
-  Warmer, Drier, Sunnier Area
-  Open & Exposed, Less Wind
-  Non-Vegetated, Paved or Gravel
-  Wind Shadow of Power Plant
-  Sun Shadow of Power Plant
-  Exposed & Fenced RV Park
-  Wind Protected & Cool
-  Open Ballfield, Some Wind
-  Approximate Property Line

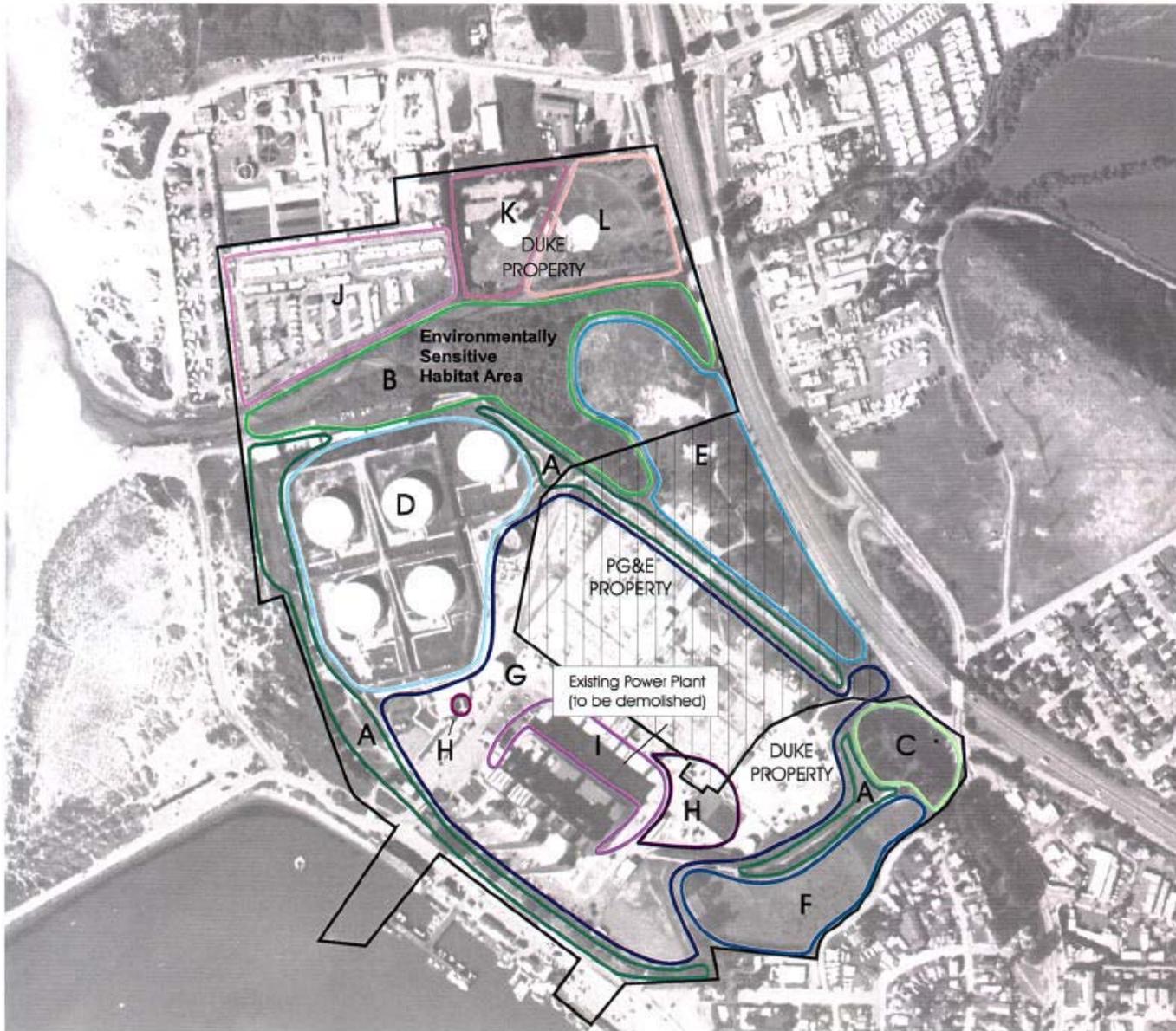
North



Not to scale

EDAW, Inc. - San Francisco
Tina Metzger Enterprises - Los Osos

October 2000



Duke Energy Morro Bay, L.L.C.

Proposed Landscape Zones

- A** Colorful Plantings & Screen
- B** Dune Vegetation & Screen
- C** Fire Retardant Shrubs near Highway
- D** Riparian Natives near Environmentally Sensitive Habitat Area
- E** Medium Trees Screen Scott St. Views
- F** Dead Trees to be Removed
- G** Tall Trees to Screen Hwy 41 Views
- H** Existing Eucalyptus to be Trimmed
- I** Tall Trees to Screen KOP 15, 20
- J** Oak Restoration Area
- K** Place Top Soil & Plant Grasses
- 5** Key Observation Point (KOP) - actual location
- 8** Key Observation Point (KOP) - located outside photo base
- Approximate Property Line

North



Not to scale

EDAW, Inc. - San Francisco
Tina Metzger Enterprises - Los Osos

October 2000



Landscape Zones and Concepts

The MBPP site is divided into Landscape Zones derived from the microclimates described above. Many variables were analyzed and the choice of appropriate plant materials for each zone included:

- 1) Microclimates
- 2) Function of the plant material in the Landscape Zone
screening, reforestation, or fire-retardant requirements
- 3) Habitat value to provide birds, butterflies, bees, and other beneficial insects protected sites and year-round food (nectar, pollen)
- 4) Aesthetic concerns such as beautification of the Embarcadero restaurant promenade area to attract tourists;
- 5) Availability of plant species with local wholesale nurseries.

Most plant species are California natives and were selected for their resistance to disease, ability to thrive on the coast, drought-tolerance and low maintenance characteristics, appropriateness for well-drained soil, and being evergreen (trees). The following are brief descriptions of the landscape concepts applicable to each Landscape Zone, which are diagrammed in Figure 6.13-A1b, Landscape Zones, and the plant lists for each.

Landscape Zone A – Landscape Zone A will be planted with colorful California native and drought-tolerant trees, shrubs, vines, and ground covers - very showy, lush, meant to attract the eye and please the senses. The landscaping and park benches will appeal to tourists and locals as they frequent the restaurants and pass Duke Energy's front door on Embarcadero Road on their way to Morro Rock.

The Class I bike path will meander to minimize the loss of existing trees and shrubs. Below is a conceptual sketch of the landscaping along Embarcadero Road showing the existing power plant removed. Following the sketch is a list of proposed trees and shrubs for Landscape Zone A.



Landscape Zone A - Plant List

BOTANICAL NAME	COMMON NAME	PLANT FUNCTION/BENEFITS
TREES		
<i>Lyonothamnus floribundus</i> ssp. <i>Asplenifolius</i>	Catalina Ironwood	Visual character, California native, coast loving
<i>Abies bracteata</i>	Santa Lucia Fir	Drought-tolerant, background tree
<i>Cedrus deodara</i>	Deodar Cedar	Beautiful form, drought-resistant
<i>Calocedrus decurrens</i>	Incense Cedar	Handsome, beautiful tree, windbreak
<i>Schinus molle</i>	California Pepper	Fruit attracts birds; background tree
<i>Umbellularia californica</i>	California Bay Laurel	Good street tree, screen, background tree
<i>Arbutus menziesii</i>	Madrone	Bird habitat; handsome broadleaf tree
<i>Lithocarpus densiflorus</i>	Tanbark Oak	Good street tree; drought-tolerant
<i>Heteromeles arbutifolia</i>	Toyon	Attracts birds, bees; excellent screen
<i>Melaleuca styphelioides</i>	Black Tea Tree	Flowers attract birds; salt air tolerant

Landscape Zone A - Plant List (cont.)

SHRUBS, VINES, FLOWERS

<i>Macfadyena unguis-cati</i>	Yellow Trumpet Vine	Fast-growing coast vine
<i>Ceanothus 'Concha'</i>	Ceanothus (wild lilac)	Drought-tolerant
<i>Cistus villosus</i>	Rock Rose	Fast-growing, colorful; wind-tolerant
<i>Plumbago auriculata</i>	Cape Plumbago	Colorful background plant; blue blossoms
<i>Oenothera berlandieri</i>	Mexican Evening Primrose	Ground cover, hardy for dry slopes
<i>Lavatera assurgentiflora</i>	California Tree Mallow	Resists salt spray, wind; good hedge
<i>Lantana montevidensis</i>	Trailing Lantana	Color, hardy, fast-growing; controls erosion
<i>Coreopsis gigantea</i>	Giant Coreopsis	Showy seaside plant
<i>Myrica californica</i>	Pacific Wax Myrtle	Bird food, screen, attractive
<i>Echium fastuosum</i>	Pride of Madeira	Attracts bees, butterflies; striking flower clusters
<i>Leonotis leanurus</i>	Lion's Tail	Attractive, vibrant orange blossom
<i>Lavandula dentata</i>	French Lavendar	Blooms continually, fresh scent
<i>Achillea millefolium</i>	Common Yarrow	Bright yellow accent, attracts beneficial insects
<i>Hardenbergia Violacea</i>	False Sarsaparilla	Striking purple color/texture
<i>Fremontodendrom californicum</i>	Flannel Bush	Striking yellow blossoms
<i>Convolvulus mauritanicus</i>	Ground Morning Glory	Colorful purple groundcover, thrives on coast
<i>Alyogyne huegelii</i>	Blue Hibiscus	Colorful blue/purple accent
<i>Cotoneaster dammeri</i>	Bearberry cotoneaster	Fast growing attractive groundcover

Landscape Zone B – Zone B will consist of two separate areas:

- (1) Restoration of California native vegetation to the coastal dune scrub on the western berm areas of Zone B, stabilize the berm, and restore on-site habitat. Existing exotic species (ice plant, etc.) on the western berm area will be removed, and seeds and cuttings will be collected (under a permit from the State Parks Department) from California native vegetation species of the Los Osos dunes and the Morro Bay sand spit area and propagated off-site until ready for planting. Trees and shrubs will be planted inside the western berm to block the salty northwesterly wind, stabilize the berm, control sand and dust, and muffle Project noise. Planted on top of the western berm will be short California native dune scrub vegetation to ensure the open viewshed to the Pacific Ocean from the Harbor Front Tract.

- (2) California native vegetation and drought-tolerant trees and shrubs will be planted on the northern berm between the existing fisherman’s storage area and the top of the sound wall to visually screen the Project from the RV park north of Morro Creek and neighborhoods farther north. Landscaping will stabilize the berm slope, cut salty northwesterly winds and reduce blowing dust and sand.

Below is a landscape concept sketch showing the Project with dune scrub vegetation only, viewed from Mother’s Beach looking east.



Plant species found on the sand spit, and other local dune areas that are proposed for seed and cuttings for propagation of plant stock for the MBPP site.

Landscape Zone B - Dune Restoration Plant List

BOTANICAL NAME	COMMON NAME	PLANT FUNCTION/BENEFITS
<i>Croton californicus</i>	Croton	Dune scrub habitat restoration
<i>Abronia maritima</i>	Sand Verbena	Dune scrub habitat restoration
<i>Abronia umbellata</i>	Purple Sand-verbena	Dune scrub habitat restoration
<i>Calystegia soldanella</i>	Beach Morning Glory	Dune scrub habitat restoration
<i>Camissonia cheiranthifolia</i>	Beach Primrose	Dune scrub habitat restoration
<i>Eriogonum parvifolium</i>	Coastal Buckwheat	Dune scrub habitat restoration
<i>Eriophyllum staechadifolium</i>	Coastal golden-yarrow	Dune scrub habitat restoration
<i>Fragaria chiloensis</i>	Beach Strawberry	Dune scrub habitat restoration
<i>Lessingia filaginifolia</i>	California aster	Dune scrub habitat restoration
<i>Lupinus chamissonis</i>	Silver Beach Lupine	Dune scrub habitat restoration
<i>Lupinus spp.</i>	Lupine	Dune scrub habitat restoration

Trees and shrubs are also proposed for the northern berm area of Landscape Zone B.

Landscape Zone B - Northern Berm Area Plant List

BOTANICAL NAME	COMMON NAME	PLANT FUNCTION/BENEFITS
TREES		
<i>Arbutus menziesii</i>	Madrone	Visual screen, handsome; bird habitat
<i>Lithocarpus densiflorus</i>	Tanbark Oak	Visual screen, California native, drought-tolerant
<i>Lyonothamnus floribundus ssp. asplenifolius</i>	Catalina Ironwood	Good on slopes, coast-loving, attractive
<i>Melaleuca styphelioides</i>	Black Tea Tree	Speciman tree; flowers attract birds
<i>Quercus tomentella</i>	Island Oak	Exceptionally handsome screen; bird habitat

Landscape Zone B - Northern Berm Area Plant List (cont.)

<i>SHRUBS/GROUNDCOVERS</i>		
<i>Heteromeles arbutifolia</i>	Toyon	Attracts birds, bees
<i>Cotoneaster dammeri</i>	Bearberry Cotoneaster	Excellent erosion control
<i>Ceanothus 'Concha'</i>	Ceanothus (wild lilac)	Slope stabilizer
<i>Cistus pupureus</i>	Orchid Rock Rose	Handsome foliage character
<i>Lupinus arboreus</i>	Tree Lupine	Flowering accent
<i>Salvia leucantha</i>	Mexican Bush Sage	Slope stabilizer; flowers attract hummingbirds

Landscape Zone C – This Landscape Zone is located in the PG&E property east of their switchyard and parallel to the Class I bike path that runs along Highway 1. PG&E stipulated the only vegetation they would allow to be planted in this area, which is under high voltage lines, is Myoporum because of its high-moisture content, fire-retardant qualities, and maximum growth height of approximately 30 feet. An agreement/letter of understanding with PG&E was reached in October 1999, which allows Duke Energy to plant Myoporum shrubs and install the automatic drip irrigation system on PG&E property parallel to the community bike path. The Myoporum shrubs will visually screen the view to the Project from Scenic Highway 1 and the community bike path.

Landscape Zone C – Plant List

BOTANICAL NAME	COMMON NAME	PLANT FUNCTION/BENEFIT
<i>Myoporum laetum</i>	Myoporum	Visual screen, fire retardant; attracts birds, butterflies

Landscape Zone D – Because of proximity to the on-site Environmentally Sensitive Habitat (ESH) area, this Landscape Zone will be landscaped with stock propagated by seeds and cuttings from existing ESH vegetation sources on site and other nearby riparian areas (with a permit from the California Department of Fish and Game [CDFG]). Landscaping in Zone D will be compatible with nearby biological resources and will be genetically and visually compatible with adjacent natural areas of the ESH (non-invasive, non-exotic species). Planted along the top and interior of the northeastern berm will be willow and other riparian vegetation that grow in the

drier fringes of the riparian areas. In addition to providing a visual screen toward the Project from neighborhoods in east Morro Bay and Highway 1, the willows and other California native vegetation provide compatible non-invasive ESH value. The following California native trees and shrubs are proposed for Landscape Zone D. This planting is not intended to expand the buffer area of the ESH that the planting is occurring in.

Landscape Zone D - Plant List

BOTANICAL NAME	COMMON NAME	PLANT FUNCTION/BENEFITS
<i>Artemisia douglasii</i>	Mugwort	California Native - ESH compatible
<i>Baccharis pilularis</i>	Coyote Bush	California Native - ESH compatible
<i>Baccharis douglasii</i>	Marsh Baccharis	California Native - ESH compatible
<i>Baccharis salicifolia</i>	Mule Fat	California Native - ESH compatible
<i>Clematis ligusticifolia</i>	Virgin's Bower	California Native - ESH compatible
<i>Cornus stolonifera</i>	Red Osier Dogwood	California Native - ESH compatible
<i>Heteromeles arbutifolia</i>	Toyon	California Native - ESH compatible
<i>Lonicera hispidula</i>	Honeysuckle	California Native - ESH compatible
<i>Myrica californica</i>	Wax Myrtle	California Native - ESH compatible
<i>Quercus agrifolia</i>	Coast Live Oak	California Native - ESH compatible
<i>Rhamnus californica</i>	Coffeeberry	California Native - ESH compatible
<i>Rubus ursinus</i>	California Blackberry	California Native - ESH compatible
<i>Salix lasiolepis</i>	Arroyo Willow	California Native - ESH compatible
<i>Sambucus mexicana</i>	Elderberry	California Native - ESH compatible
<i>Symphoricarpos mollis</i>	Snowberry	California Native - ESH compatible
<i>Umbellularia californica</i>	California Bay Laurel	California Native - ESH compatible

Landscape Zone E – A double row of trees will be carefully located along Otter View Road to screen the viewshed toward the Project from the Scott Street neighborhood. Care in locating the planting of the following list of trees so as not to block the Scott Street neighborhood viewshed to the Pacific and Morro Rock.

Landscape Zone E – Plant List

BOTANICAL NAME	COMMON NAME	PLANT FUNCTION/BENEFITS
TREES		
<i>Erythrina crista-galli</i>	Cockspur Coral Tree	Beautiful screen; striking orange blossoms
<i>Schinus molle</i>	California Pepper	Visual screen; fruit attracts birds
<i>Umbellularia californica</i>	Bay Laurel	Visual screen; bird habitat

Landscape Zone F – The single row of 23 dead Monterey Pines (*Pinus Radiata*), victims of Pitch Canker will be removed.

Landscape Zone G – Thick tall trees to screen Highway 41 westbound traffic view to the Project will be planted on the Duke Energy property east of the existing ball fields. The trees will also help to screen the Scenic Highway 1 southbound traffic view of the Project.

Landscape Zone G – Plant List

BOTANICAL NAME	COMMON NAME	PLANT FUNCTION/BENEFITS
TREES		
<i>Abies bracteata</i>	Santa Lucia Fir	Visual screen; bird, butterfly habitat
<i>Arbutus menziesii</i>	Madrone	Visual screen; bird, butterfly habitat
<i>Cedrus deodara</i>	Deodar Cedar	Visual screen; bird, butterfly habitat
<i>Lyonothamnus floribundus ssp. asplenifolius</i>	Catalina Ironwood	Visual screen; bird, butterfly habitat
<i>Melaleuca styphelioides</i>	Black Tea Tree	Visual screen; bird, butterfly habitat
<i>Umbellularia californica</i>	Calif. Bay Laurel	Visual screen; bird, butterfly habitat

Landscape Zone H – The collection of existing volunteer clumps of eucalyptus will be trimmed down to below existing berm height (approximately 60 feet) to open the wide viewshed from the Harbor Front Tract and Scott Street neighborhoods to Morro Rock, the bay, sand spit, and Pacific Ocean. Trimming down the eucalyptus trees to open the viewshed to the west was frequently requested by many residents from the two neighborhoods at the City/Duke workshops and Duke Chats (1999 – 2000). The existing Monterey cypress on top of the berm will be trimmed up and sculpted to frame the view.

Landscape Zone I – A single row of trees to help screen the Project from Scenic Highway 1 and the Harbor Front Tract will be carefully located between the Project and the ammonia storage area.

Landscape Zone I – Plant List

BOTANICAL NAME	COMMON NAME	PLANT FUNCTION/BENEFITS
TREES		
<i>Arbutus menziesii</i>	Madrone	Visual screen; bird habitat
<i>Calocedrus decurrens</i>	Incense Cedar	Visual screen; bird habitat
<i>Cedrus deodara</i>	Deodar Cedar	Visual screen; bird habitat
<i>Lithocarpus densiflorus</i>	Tanbark Oak	Visual screen; bird habitat
<i>Lyonothamus floribundus</i> ssp. <i>asplenifolius</i>	Catalina Ironwood	Visual screen; bird habitat
<i>Melaleuca styphelioides</i>	Black Tea Tree	Visual screen; bird habitat

Landscape Zone J – Zone J includes reforestation of this hill on the southeastern portion of the property, which borders Main Street. Gradual removal of the dead *Pinus radiata* trees (victims of Pitch Canker) will be necessary over time as they die off. Steps will be taken to retain hollow or dead trees that do not pose a fire or safety hazard to provide habitat, nesting, cover, and feed purposes for birds. Reforestation of different California native oak tree species (140 oak trees) in this Landscape Zone began in April 2000 as a Duke Energy community outreach/educational project in coordination with Morro Bay High School. Trees will be planted in this Landscape Zone over time, as necessary, and continue to provide bird and monarch butterfly habitats.

Landscape Zone J – Plant List

BOTANICAL NAME	COMMON NAME	PLANT FUNCTION/BENEFITS
TREES		
<i>Abies bracteata</i>	Santa Lucia Fir	Beautiful background tree; habitat value
<i>Calocedrus decurrens</i>	Incense Cedar	Handsome tree; habitat value
<i>Cedrus deodara</i>	Deodar Cedar	Bird habitat; drought-resistant, beautiful form
<i>Quercus agrifolia</i>	Coast Live Oak	Fast-growing native oak; habitat value
<i>Quercus chrysolepis</i>	Canyon Live Oak	Habitat value; drought-tolerant

Landscape Zone J – Plant List

<i>Quercus ilex</i>	Holm Oak	Good evergreen street tree; habitat value
<i>Quercus tomentella</i>	Island Oak	Exceptionally handsome, bird habitat; thrives on slopes
<i>Umbellularia californica</i>	California Bay Laurel	Good street tree; aromatic evergreen

Landscape Zone K – The east/west Class I bike path in the southern portion of the Duke Energy property will traverse the flat area from Main Street to the Pacific Café parking area on Embarcadero Road. This Class I bike path will be an asset to the community, providing an addition to the existing and proposed bike routes in the City of Morro Bay. The landscaping proposed to parallel the community bike path will be high moisture content Myoporum (low fire hazard for liability) to screen the PG&E switchyard view from the path. Also to be planted along the path fence for fragrance will be the vine Japanese wisteria.

Landscape Zone K – Plant List

BOTANICAL NAME	COMMON NAME	PLANT FUNCTION/BENEFIT
<i>Wisteria floribunda</i>	Japanese Wisteria	Graceful vine, beautiful fragrant bloom; fence cover
<i>Myoporum laetum</i>	Myoporum	Visual screen, fire retardant; attracts birds, butterflies

Landscape Zone L – After demolition of the entire existing power plant to ground level, the power plant building footprint area will be covered with soil and native grasses until the site is developed in the future.

Landscape Installation Process

The landscape installation process will occur over time and be coordinated with the Project construction process. Local landscape contractors will be used for the installation, and plant materials and stock will be purchased at local area wholesale nurseries (see Landscaping Sources and References, at the end of this section). The site grading and drainage system will comply with applicable Federal, State, and local regulations.

The existing interior berm's in the tank farm area (where the Project will be sited) will be removed and that soil then added on the top of the outer tank farm berms to raise their height from 15 feet to approximately 18 feet. The soil added to the top of the exterior tank farm berms will consist of soil currently of the interior berms. The west berm will be revegetated with propagated native stock from cuttings and seeds collected in the dune scrub areas of the Los Osos Montana de Oro area, the sand spit, and natural dune scrub areas in Morro Bay (with a permit from the State Parks Department).

Cuttings and seeds will be collected, with a permit from CDFG from the on-site ESH, to build up propagated California native plant stock to revegetate the existing eastern tank farm berm, which borders the ESH area. Only non-exotic plants from the riparian habitats of Morro Creek and Willow Camp Creek will be used in the restoration effort.

The Project landscaping will be irrigated with a water-saving drip irrigation system, with water provided by MBPP on-site wells. Windbreaks and soil amendments, as necessary, will be applied. If individual plants fail, there will be provisions for guaranteed replacement.

Proposed Phasing of Landscape Installation

To coordinate with the Project construction process, landscape installation will happen over time in two major phases. The descriptions below in Phases I and II of the Project landscape installation process directly correspond to the alphabetized areas in the Proposed Phasing of Landscape Installation Map, Figure 6.13-1Ac.

Landscape Installation Phase I: Pre-Construction and During Construction of the Project

A: Collect seeds and cuttings from on-site and off-site locations to start the propagation process after attaining the permit from the CEC, to build up California native vegetation stock for the dune scrub revegetation areas and the proximate riparian areas (non-invasive, non-exotic seeds, and cuttings). Because it takes time to propagate and build up vegetation stock (18 months) for planting, this will begin right away.

B: Trim eucalyptus trees which now block residential views to the harbor inlet and Morro Rock, on the southwest portion of MBPP property (off Embarcadero), to below the 60-foot berm height. This will address the requests of the residents of Scott Street and the Harbor Front Tract neighborhoods to open the views to the coast.

C: Plant *Myoporum* along the PG&E property, along the bike path to create a visual screen to Morro Bay Power Plant

the Project from the community bike path and Scenic Highway 1. This effort will help reforest the PG&E area under the high voltage wires that lost many trees and shrubs during October 1999.

D: Install lush landscaping and construct the Class I bike path in front of the MBPP property along Embarcadero Road. This will quickly improve Embarcadero Road and Duke Energy's front door, the view of Duke Energy that most tourists and locals experience. The Class I bike path will separate pedestrian and bicycle traffic from motorists during Project construction and post-construction phases.

E: Plant appropriate California native and dune scrub vegetation on the berm to stabilize the soil and provide habitat and visual beauty.

F: Plant the carefully located trees along Otter View Road to screen the Project from the Scott Street neighborhood. The visual screen needs to establish before removing the dead Monterey pines (*Pinus radiata*).

G: Revegetate with California natives vegetation the area between Embarcadero Road and the Project after the temporary construction road is graded and surfaced. Stabilization of the soil/sand of the area with California native dune scrub vegetation will reduce dust blowing during the construction process.

Landscape Installation Phase II: Post Project Construction

H: Plant trees to screen westbound Highway 41 views to the Project. The opportunity to make a correct determination of where the trees need to be planted to provide a screen toward the Project will be attainable during post-Project construction. This effort will help soften the skyline from Highway 41 westbound motorists.

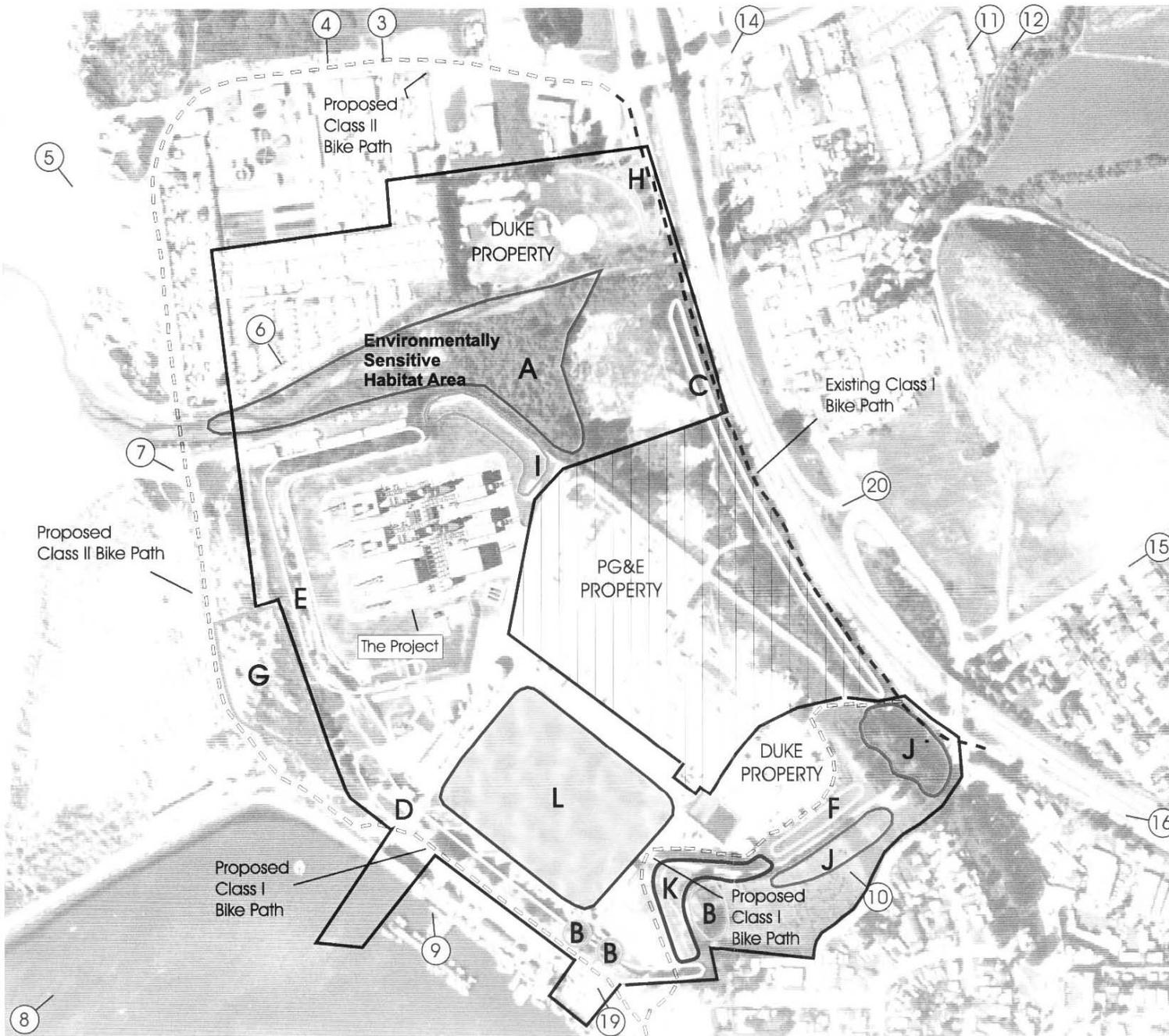
I: Plant non-invasive, non-exotic ESH vegetation. Plant interior and top of the berm east of the Project as soon as vegetation is propagated from seeds and cuttings.

J: Gradual removal of dead *Pinus radiata* trees. Leave tree trunks and logs whenever possible to provide bird habitat. Replant a variety of California native tree species, as necessary, to continue providing habitat for birds and Monarch butterflies.

K: After demolition of existing power plant, cover the building concrete slab footprint with soil and grass until it is decided what type of development will take place in that area of the property.

Duke Energy Morro Bay, L.L.C.

Proposed Phasing of Landscape Installation



Phase I

- (A)** Build Vegetation Stock for Environmentally Sensitive Habitat Area
- See Biology Section 6.6 for Delineation
- (B)** Trim Eucalyptus to Open Viewshed
- (C)** Plant East View Screen (Myoporum)
- (D)** Landscape Embarcadero Bike Path
- (E)** Restore/Revegetate Western Berms
- (F)** Plant Screen for Scott St. Neighborhood
- (G)** Dune Revegetation/Restoration

Phase II

- (H)** Trees to Screen Views from Hwy. 41
- (I)** Plant Berm Top & Interior
- (J)** Remove Dead Trees
- (K)** Landscape Parallel to East-West Bike Path
- (L)** Grade & Revegetate Existing Powerplant Site
- (5)** Key Observation Point (KOP)
- actual location
- (8)** Key Observation Point (KOP)
- located outside photo base
- (—)** Approximate Property Line



North Not to scale

EDAW, Inc. - San Francisco
Tina Metzger Enterprises - Los Osos

October 2000

L: Open areas immediately surrounding the Project, that are not paved, will be planted with a groundcover to prevent soil erosion and reduce blowing sand.

Vegetation Management

The landscape and vegetation management of the MBPP property encompasses the long-term stewardship of the 107-acre industrial site. In the beginning, care will be given to help the newly planted trees and shrubs establish. Over time, the planted areas will be professionally maintained and attention given to the landscaped areas to ensure the flourishing of the individual plants and trees. All landscaping will be cared for, maintained, watered, fertilized as needed, and kept in healthy growing condition.

As mature or diseased trees die, they will be replaced with the appropriate species listed earlier by Landscape Zone. An assessment will be conducted for the success or failure of individual plants, and provisions will be made for replacement, if necessary.

Coordination with PG&E will be ongoing concerning vegetation management of the proposed visual screen that parallels Highway 1 on their property. To reduce the possibility of fire hazard on site, Duke Energy will remove ground, surface, and ladder vegetation fuels in areas bordering where PG&E high voltage lines are overhead. This is appropriate for safety and liability purposes. Reducing ground, surface, and ladder fuels entails clearing the soil and on up to seven feet under the trees (including low branches) to reduce any possibility of fire hazard.

LANDSCAPING CONCEPT SOURCES AND REFERENCES

Selection of tree and shrub species was verified and cross-referenced in four reliable sources:

- (1) *Trees and Shrubs for Dry California Landscapes*, by Bob Perry (1981);
- (2) *Sunset Western Garden Book*, by the editors of Sunset Books and Sunset Magazine (1990);
- (3) *Landscape Plants for Western Regions*, by Bob Perry (1992); and
- (4) *Plants for California Landscapes – A Catalog of Drought-tolerant Plants*, edited by the State of California Department of Water Resources (1981).

Also referenced were the following:

- (1) *A Yards and Neighbors Brochure for California's Central Coastal Morro Bay Area* (1999), Morro Bay National Estuary Program and the Bay Foundation of Morro Bay;
- (2) *Sunset Western Landscaping Book*, edited by Kathleen Norris Brenzel (1997); and
- (3) *Botanical Survey of the Morro Bay Power Plant*, by V. L. Holland, Ph.D. (August 25, 2000).

Other sources included wholesale nurseries, such as:

- (1) Native Sons Wholesale Nursery of Arroyo Grande.
- (2) Central Coast Growers Wholesale Nursery of Arroyo Grande.
- (3) Cornflower Farms - Growers of California Native and Water Wise Plants of Elk Grove.
- (4) Tree of Life Wholesale Nursery of San Juan Capistrano.
- (5) West Covina Growers of Arroyo Grande.
- (6) Forest Nursery of Los Osos.

Groups also consulted were:

The Small Wilderness Area Preservation of Los Osos
The Native Tree Committee of San Luis Obispo County
Morro Bay tree enthusiast Lionel Johnston
The California Department of Forestry (CDF) and Fire Protection.

DESIGN VISUALIZATION PROCESS – ATTACHMENT 6.13-2

Photo/3D Model Composite Simulation

The steps taken in the visualization process are described below, within the corresponding software platforms employed. Generally, to ensure a high degree of visual accuracy in the simulations, Computer Aided Design (CAD) equipment and the use of Global Positioning Systems (GPS) allows for life-size modeling within the computer. This translates to using *real world scale and coordinates* to locate facilities, other site data, and the actual camera locations corresponding with 3D simulation viewpoints. The degree of accuracy for the CAD equipment is absolute, the accuracy for the GPS location data is to within approximately 1 meter.

Microstation 3D CAD & GPS Data Integration

A CAD site map was initially imported as a background reference. Microstation CAD drawings of both existing and proposed facilities are placed on top of the site map to register and orient the correct locations. The 3D massing models of both the existing power plant and the proposed modifications are generated in real world scale.

Intergraph Model View

An electronic camera lens matches the lens that was actually used in the field. A 35 mm camera was used with a 50 mm lens consistently throughout the process. This lens selection allows for viewing of the model generated above in the same way the plant would be viewed in the field.

Next, the photographic negative is scanned into the 3D database and loaded as an environment within which the view of the 3D model is generated. To generate the correct view relative to the actual photographs, the electronic camera is placed at a location (within the computer) from where the photograph was taken. From here, the 3D wire frame models are displayed on top of the existing power plant so that proper alignment, scale, angle, and distance can be verified. When all lines of the wire frame model exactly match the photograph, the camera target position is confirmed. To complete this phase, the sun angle is set, materials and textures are applied, and the composite image is rendered through a computer image process known as *raytracing*.

Adobe PhotoShop

Finally, the composite image is incorporated into the final simulation by electronically stitching it together with the accompanying photographs of the panoramic image. The number of seams requiring stitching, usually 2 or 3, depends on the number of total photos utilized in the finished simulation.

ArcView

The photographic images taken from the twenty KOPs are scanned at 300 dots per square inch (dpi) and stored as raster data. Raster data are comprised of individual pixels with rows and column numbers. In this case, each pixel is equal to 1/300" or 0.08467 mm. To ensure accuracy during the measurement process in ArcView, the images are then geo-referenced. Geo-referencing is a process that converts the image coordinates to real-world coordinates that can be measured in ArcView. Geo-referencing establishes an absolute starting XY coordinate for the images. This will ensure that all measurements taken on the existing images and the photo simulations are calculated relative to this point. The images are then imported into ArcView where they are segmented and quantified. To do this, areas of the image are traced and measured corresponding to two characteristics. The segments of the power plant traced include areas to be removed and to be added. Each of these segments is further divided into the portion lying in front of the skyline, the coastal zone, Morro Rock, and all other portions. A sample of the ArcView data is included in the body of the text as Figure 6.13-14. This information is then transferred into the data sheet accompanying the before and after photos in the final report.

Adobe Pagemaker

The panoramic before and after images are transferred into Pagemaker for final layout into the body of the report.